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Zusammenfassung

Diese Untersuchung der Berufsbildungssysteme der wichtigsten mit der EU konkurrierenden Länder basiert auf den überarbeiteten Zielen der Lissabon-Agenda, die Europa auf der Grundlage wissensbasierter Produktionssysteme zum wettbewerbsfähigsten und dynamischsten Wirtschaftsraum in der Welt entwickeln will, der zugleich sozialer Gerechtigkeit verpflichtet ist. Die vorgelegte Studie zielt darauf ab, mit Hilfe von Expertenmeinungen und durch Literaturrecherchen die Berufsbildungspolitik in China, Indien, Rußland und Südkorea zu analysieren und die Lernchancen für europäische Länder aufzuzeigen. Mit dieser Länderauswahl sind vier wichtige »Aufsteigernationen« in den globalen Wettbewerb unter Beobachtung. Dabei werden fünf Felder identifiziert, die für das Verständnis der aktuellen Leistungsfähigkeit und der Entwicklungspotenziale von Berufsbildungssystemen von ausschlaggebender Bedeutung sind:

- Grundlagen und Struktur der Bildungssysteme,
- Aktuelle allgemeine Trends in der Berufsbildungspolitik,
- Image und Attraktivität von beruflicher Bildung,
- Finanzierung beruflicher Bildung,
- Früherkennung von Qualifikationsbedarf.

Die Untersuchung schließt mit Empfehlungen für die EU und deren Mitgliedsstaaten, was von den Wettbewerberländern zu lernen wäre, um die Ziele der Lissabon-Agenda – erhöhte globale Wettbewerbsfähigkeit, verbesserte Innovationsfähigkeit, die zusätzliche und bessere Arbeitsplätze schafft und eine größere soziale Gerechtigkeit in den kommenden Jahrzehnten ermöglicht – umzusetzen.

Abstract

The study on VET systems of major EU competitor countries is based on the objective of the (revised) Lisbon agenda to become the most competitive region of the world based on a knowledge driven production and social cohesion. Building on experts opinion and literature research this study aims at monitoring VET policies in China, India, Russia and South Korea. With these countries a set of recently evolved top-performers in the global economy is under observation. The study analyses five themes which are assumed to be of outstanding importance for understanding the current performance and the developing potentials of VET systems. The addressed thematic fields are

- background and structure of the education systems,
- current general policies in VET,
- image and attractiveness,
- financing of VET,
- early skills recognition.

The study ends up with a set of conclusions emphasising possible recommendations that might be formulated for European countries and the European Union in order to support their struggle for achieving the Lisbon goals, i.e. achievieng a good position in the global economy, innovation with more and better jobs and social cohesion during the coming decades.

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Prof. Poonam Agrawal, NCERT, New Delhi for India

Dr. Jihee Choi, KRIVET, Seoul for Korea

Dr. Gerlind Schmidt, DIPF, Frankfurt for Russia

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1. Executive Summary

The goal of this executive summary is to present the project 'Vocational Education and Training Policies in the EU Competitor Countries – China, India, Russia and Korea', its aims and scope and its results.

Aim and scope of the study

The project was carried out by ITB, University of Bremen on behalf of CEDEFOP. The project is analysing the VET policies of the mentioned countries because they constitute major economic competitors to the European Union and its member states. There is a complementary project with the same focus but looking at other countries: Australia, Canada, the United States of America, and Japan.

The underlying objective of the (revised) Lisbon agenda to become the most competitive region of the world based on a knowledge driven production and social cohesion forms the rationale for the decision to look at the major competitor countries' VET policies.

Five themes have been covered in the monitoring process, i.e. the topics:

- image and attractiveness,
- financing of VET,
- early skills recognition and,
- two background themes.

In order to rightly interpret the findings on those topics an overview is provided on structures and organisational differentiation and specific social and cultural configurations of VET and current general policies and policy developments in VET.

The research process

The monitoring concept in this study was based on a research process, that included the following steps:

- development of a monitoring grid (covering the mentioned five aspects);
- collection of materials and data in cooperation with national experts UNESCO UNEVOC and the German Institute for International Educational Research (DIPF);
- drafting of four preliminary country profiles;
- feedback and revision of country profiles by four national experts;
- drafting of an interim report including a preliminary comparative analysis;
- identification of gaps and white spots;
- gathering of additional data;
- completion of the country profiles;
- comparative analysis between the four countries, drafting a comparative final report;
- second feedback and validation round among a larger circle of eight high-level experts on the respective countries.

Limitations of available data

The countries assessed provide heterogeneous Gross Enrolment Ratios (GER) in VET and graduation rates as measures of VET completion are generally of limited value because of the huge variety of programmes and programme sequences. There are large deficiencies regarding the availability of adequate and sufficient data on various aspects of VET. Therefore it is difficult to exactly assess the contribution of VET to broader economic and social goals.

A largely complete and comparable set of statistics as far as economic data, demographic and general education data are concerned is available. Indicators based on these statistics have a relatively high level of validity and international comparability. However, when it comes to educational data we find that indicators might be appropriate for general education but often less adequate and even less comparable for VET. Another problem that was faced in the collection of adequate data in most of the countries observed is the lack of an infrastructure of VET experts.

General conclusions for European VET policies

For the four countries monitored in this report it seems as if the close look at them can mainly serve a mirroring function. The look at their VET landscapes and the three thematic areas helps to unveil and profile certain distinct features of European VET. Especially the three Asian countries that are monitored in this report showcase that fast economic growth and success is not an immediate function of the existence of a VET system. However, it seems — especially in comparison to the countries from the complementary study, Australia, USA, Canada and Japan — that VET is a constitutive factor to economies that are lasting on the secondary and tertiary sector economic activities, sophisticated technological changes and demands being one of major drivers.

Image and attractiveness of VET in Europe compares well to the monitored countries that are all putting enormous efforts into trying to raise the image of VET. This can be seen as an asset to VET policies in Europe. However, it could also be argued that Europe is set on a specific future idiosyncratic track that brings about its own risks and challenges, since the experience from the countries show that VET is not a necessary condition to economic growth and success. China and Russia do form an interesting pair in this connection since they are both transition economies. In Russia the status of VET is still somewhat inferior to China in terms of actual policies, which might be explained by the strong orientation towards Anglo-Saxon, liberal economic models.

General direction of VET policies

The »policy packages« that are available in general with regard to human resources policies are roughly:

a) an integration of education and HRD through establishing VET as a pathway within the initial and higher education system;
b) a strategy that puts emphasis on an academic orientation of the education system and leaves the whole issue of competence development and HRD to the individual and companies after graduation.

It seems that the four countries monitored in this report are to varying degrees still undecided with regard to this general strategic question. China is the country that makes the most visible attempts to establish VET as a distinct pathway. However, all observed countries have identified VET policy as a crucial contribution to economic development and increasing innovativeness starting with Korea in the late 1970s and followed by China, India and Russia in the 1990s. A major trigger for the ambitions to enhance VET is the technological change and the move towards more demanding production processes (biotechnology, electronics and manufacturing). In India and China a common goal is to overcome the divide between centre and periphery in terms of economic wealth of different regions and to overcome severe unemployment in many regions. Even though Russia shares similar problems, this function is not that clearly attributed to VET.

Interestingly all countries show rather centralistic approaches to VET governance. China and India for example have a very strong central education policy, however providing decision authority in various fields to more decentralised levels. In Korea centralism seems to be stronger, while in Russia after a phase of de-centralisation during the 1990s there is an administrative re-centralisation taking place, which is opposed by neo-liberal policy of de-centralising the financing of the VET systems.

Balancing an increased demand for VET despite unattractiveness

In all monitored countries vocational education paths suffer from a negative image. Only 30% to 40% of an age cohort do enrol into VET programmes. Attempts to extend the vocational track into the tertiary education are probably the most promising measures to improve the image and attractiveness of VET under this condition.

All the initiatives in the monitored countries to improve a »lateral mobility« allowing for switching between vocational and general educational pathways did not significantly boost the image of VET, but rather contributed to the escape from vocational education pathways. This influx of talents to the general education track can possibly be reduced if India, Korea and Russia would follow China's example to implement an extension of the VET pathways into tertiary level and put the certificates (and exams) in the same category as those of general tertiary education.

The negative image and little attractiveness among the population and especially among youth is corresponding with reservations of companies against the vocational schools. The reputation of the VET institutions is often bad, because they do not match the companies' demands for skilled workers.

Set-up of special institutions

In all observed countries a tendency can be observed to set up new forms of institutions for the provision of VET in order to enhance cooperation with companies and the regional economy on the content, the quality, the curriculum and the relationship of theoretical knowledge and practice. The case of China also shows that this strategy is often connected with the need for measures of training that are helping college graduates to acquire the skills they actually need in the labour market after leaving the higher education system. This can involve high personal and societal costs that possibly could be avoided.

Financing – increasing privatisation of training provision

The expectation to learn about innovative forms of financing VET systems in the four countries, China, Korea, India and Russia, was not fulfilled. Even though the public funding of IVET has increased in all of the four countries during the last decade, China's, India's and Russia's funding situations are labelled as 'under-financed', 'underinvested' or 'problematic'. This has led to the introduction of performance-based financing schemes that regulate the influx of governmental money to public and private VET providers. In other countries — especially India and Russia — his has led to a private training provider market. The amount of revenues gained through tuition fees and income-generating activities of the VET institutions is on the increase.

An innovative approach to financing vocational education that can be found across the observed countries is the introduction of voucher systems. Levy systems also exist in all countries, partly for VET, partly for CVET. In some cases abolishing a not functioning levy system (as was the case in Russia in 1999) might be highly innovative.

For China and Korea there are no innovative financing examples provided. Additionally, in most of the countries' financing schemes funding are increasingly allocated per student, in order to match the real costs of courses.

There are not many attempts to measure the effectiveness and efficiency of the national VET systems in most of the countries. India, as an exception, seems to have a long tradition of evaluating its vocational education programmes. The recommendations arising from these evaluations did, besides addressing general subjects of education, address funding issues.

A need for identification and anticipation measures that address the needs of VET practice

Where the identification and anticipation of skill needs is concerned, this does not seem to be a much-addressed theme in each of the countries. Overall, involvement of social partners in this area could be extended. The Russian government has attempted to involve the social partners, in particular in long-term forecasts, but until now that has not been very successful. The same holds true for India and for China.

The identification and anticipation of future skill needs is the »stepchild« in all of the four countries. Skills forecasting in a narrower meaning is rarely conducted, but rather more general human resources and manpower forecasting, which is carried out by planning commissions based on census data or data from employment agencies. Such foresight activities are rarely linked with the assessment of real needs emerging from developments in production and practice. An interesting measure is reported from India, where on the district level assessment and foresight studies are conducted in order to identify vocational courses suited to the local needs. However, the practice of these district vocational surveys shows that often the results of these surveys are not fed into the planning procedures for vocational courses.

2. Introduction

With this report it is intended to present major results of the project 'Vocational education and training policies in the EU competitor countries – Lot 2: China, India, Korea, and Russia'.[1] The overall project comprises of two partial studies, Lot 2 covering the above mentioned countries and Lot 1 embraces Australia, Canada, the United States of America and Japan. Both lots share a common approach with an identical instrument of analysis and a uniform goal, which is analysing and comparing the VET policies of some of the European Union's major competitor countries. With China, India, Korea and Russia this report focuses on a set of countries of which some have made furious progress during the last decades (e.g. China and Korea) others are expected to make major leaps forward in their future economic development and their integration into global economy (e.g. India). The chosen set of competitor countries comprises top-performers in the current global manufacturing supply chain (China) as well as countries performing well in software development and IT (India, Korea). Eventually, with Russia a country is included that was repeatedly exceeding all expectations regarding GDP growth during the last years and it can be expected that exports (of oil, natural gas and metals) will be the major driver for Russia's transformation into a competitive global producer of industrial goods and services. This sketch provides enough indications to have a closer look at these countries – particularly regarding their specific modes of linking vocational education and training with their economic performance. It is important to get a clear picture of the VET systems' functioning, their structural peculiarities, their embeddedness into policy and society and their performance levels. These issues can be expected to differ among the countries observed. But besides all differences and peculiarities of the national VET systems, there are also some striking similarities such as the dominating school-based type of VET provision and the corresponding deficient acquirement of skills and practical abilities through the students. Thus, the analyses of the differences and commonalities will generate insights that might contribute to improving policies and the performance of European countries' VET systems, and support to make them more sustainable. Thus, similarities between European and competitor countries' VET systems and similarities in the challenges they are facing might help to learn some lessons – either from success or failure. But since Europe is too heterogeneous regarding the organisation of national VET systems we cannot take Europe as a frame of reference for analysing and interpreting the four monitored countries. However, what can be done is defining some points of reference and indicators that allow for assessing major aspects and elements of the national VET systems regarding their contributions to qualification, skill formation and education, and other societal spheres, such as economic competitiveness or social inclusion.

This study was conducted in the tensional field of two focal points that serve as references and frame of analyses: the Maastricht study »Achieving the Lisbon goal: the contribution of VET« (Leney et al. 2004) and the CEDEFOP study »Zooming in on 2010« (Lipinska et al. 2007). The first point of reference for the comparison with the situation in Europe and its

[1] The countries monitored by this study are The People's Republic of China, referred to as 'China', The Republic of Korea in this study referred to as 'Korea', The Russian Federation referred to as 'Russia' and The Republic of India referred to as 'India'.

member states are the results of the Maastricht study »Achieving the Lisbon goal: the contribution of VET«. This provides a comprehensive account of the status and progress of Vocational Education and Training systems in the European Member states and relates those situations to the explicit policy objectives in European co-operation such as the Bruges-Copenhagen Process and the programme Education 2010. The messages of the Maastricht study addressed, among others, IVET and CVET as important action fields of the EU member states and the thematic fields of analysis in this study were also including the topics *image and attractiveness, financing of VET and early skills recognition*. The underlying objective of the (revised) Lisbon agenda to become the most competitive region of the world based on a knowledge driven production and social cohesion form the rationale for the decision to look at the major competitor countries' VET policies. Therefore, the results of the Maastricht study can be taken as one pillar of a reference frame and, second, the »Maastricht results« are compared with the results of this study. This will be an aid to be able to identify what looking at the competitor countries could teach us.

Similarly, the second point of reference, the CEDEFOP study »Zooming in on 2010« is picking up the thread of the Maastricht study by continuing the line from Copenhagen via Maastricht to the Helsinki Communiqué 2006 in which, besides others, the priorities of improving image, status and attractiveness of VET, the need for good governance, developing, implementing and testing common tools, a more systematic mutual policy learning and a broader inclusion of stakeholders »on board« to put Copenhagen into place. These priority fields give the frame of reference for the CEDEFOP study which collected evidence that allow to reassess the progress achieved so far and to develop prospects of VET policy pathways until 2010. Particularly the Helsinki priorities are serving as the reference frame for this study and are operationalised in five thematic fields structuring the analyses.

2.1 Five thematic fields

Five thematic fields have been chosen as a reference frame for analysing the VET systems of the monitored countries. These fields can be assumed to mark some cornerstones for understanding the current performance and the developing potentials of VET systems: First, a characterisation of the background, structures and organisational differentiation of VET in the respective countries is provided. This includes especially the prevailing cultural and social configurations in which the learners' and employers' choices pro or contra VET streams are embedded. Second, the current policies and policy developments in VET are presented, this addresses mainly the relationships and repercussions of VET and the economy or the production sphere, respectively. The third thematic field tackles image and attractiveness of VET compared to general education pathways. This includes the social sustainability of the vocational paths and their potentials for coping with future challenges arising from competitive production on a top-class level. Theme four focuses on the policies, structures and challenges of VET financing. The main focus here is not on the *status quo* or the prevailing traditional structures of financing, but rather on innovative schemes for financing that might e.g. foster attractiveness of VET paths. Eventually, theme five pinpoints the measures and concepts developed for skill forecasting (anticipation of future skill needs), which is very important for avoiding mismatches of skill supply and skill demand or to evade technologically outdated skill structures among the workforce.

With these themes we can get a comprehensive view on the basic structures of VET systems, their embeddedness (and cultural contexts), their current strengths and weaknesses as well as their potentials for development. Especially the question for innovative financing concepts and the attempts to improve the attractiveness of VET can be seen as major characteristics to be used for evaluating the prospects of the VET systems **and** their supportive or detrimental influences on economy and society. Furthermore, the attempts for anticipating future skill needs (skill foresight) and considering the re-percussions with curriculum development become important means for re-adjusting the VET curricula to emerging technological developments or changing requirements of companies. At the same time qualifications and skills of the young population are an important input factor into future production and economic competitiveness.

2.2 Sequence of chapters

The sequence of chapters in this report follows the above outlined thematic fields. Chapter 2 gives an overview of the data collection strategy and provides details of the applied approach to comparative analyses. This section also includes basic underlying definitions of key terms and concepts. In chapter 3 the background information for the VET systems in the monitored countries are provided. This comprises key economic indicators as well as the structural and institutional framework of the national VET systems, the historical development of national VET systems, and it includes a differentiated analysis of initial and continuing VET. Chapter 4 focuses its analyses on the four countries' attempts of improving image and attractiveness of their VET systems. The subjects of chapter 5 are the financing details of VET. Special emphasis is laid upon (possibly) emerging innovative funding schemes. Methodologies and systems of identifying future skill needs are subject of chapter 6. Approaches and methods to anticipate skill and qualification needs in the four countries are presented. When available, results of such skill foresight measures are unveiled. In section 7 the current policy developments regarding VET are outlined emphasising possible newly arising policy measures. Chapter 8 is summarising conclusions and provides some recommendations. The major underpinning question is: »What can be learned from the analyses of the VET systems of major global competitors for Europe?« In a subsequent step some recommendations are formulated that might help to improve or re-direct VET policies of European countries.

Each chapter starts with an opening section on the underlying concepts providing brief, but comprehensive clarifications, definitions and questions and then gives a short summary of the findings that can be drawn from the analysis of the country profiles.

3. Data collection and approach to comparative analyses

3.1 Data collection – first phase

In the first stage, which mainly focused on data collection, the following twofold approach had been adopted. On the one hand, searches have been undertaken by the research team via internet (international sites like OECD, UNESCO, UNEVOC-UNESCO, World Bank, as well as national sites, e.g. national (federal) Ministries of Education, national (federal) Ministries of Labour, national (Research) Institutes for Vocational Education and Training) to obtain relevant data sources and policy documents. Approximately 200 documents and statistical reports have been gathered. In addition, this synthesis report is based on the information provided by national experts of the four countries under observation. For the purpose of gathering comparable data, a data collection and country profile grid was developed, which was distributed to the VET experts. In addition to this, the national experts were asked to give some further information about the content, scope and relevance of the available data sources.[2] The table below gives an overview of the national experts involved and their background.

China	Prof. Zhao Zhiqun, Tongji University, Shanghai
India	Prof. Poonam Agrawal, National Council of Education Research and Training (NCERT), New Delhi
Korea	Dr. Jihee Choi, Korea Research Institute for Vocational Education and Training (KRIVET), Seoul
Russia	Dr. Gerlind Schmidt, German Institute for International Educational Research (DIPF), Frankfurt Ms. Gabriela Höhns, Federal Institute for Vocational Education and Training (BIBB), Bonn

Table 1: National experts involved in the study

3.2 Data collection and analysis – second phase

The main activities in the second phase of the study consisted of:

a) compiling draft 'country profiles' based on the materials thus far collected (own internet search and completed data identification grid of the national experts). These country profiles (approx. 25 pages) give a concise survey of the developments in the national VET systems, VET policies in general and VET policies in particular with regard to 'image and attractiveness of VET', 'financing of VET' and 'identification and anticipation of skill needs'. The country profiles serve as input for the comparative analysis between the four countries concerned, which forms the basis of the final report. Where applicable, more detailed information on

[2] The information provided by the national experts is not emphasized as quotations, because this would have aggravated the readability. If not set apart the arguments brought forward in this report are based on these experts' information. Direct quotes are marked as such. Any other sources and information are quoted according to common scientific rules.

certain (sub) topics in the draft country profiles was asked for (based on individual requests and searches);

b) feedback from national experts. The country profiles were sent back to the national experts with the request to provide additional data (sources) with regard to the gaps and white spots in the draft country profiles and with the request to verify the presentation and description of the information and data included in the draft country profile (for this the feedback of CEDEFOP, which we received during a meeting at Thessaloniki in August 2007, was of significant importance);

c) completion of the country profiles;

d) comparative data analysis across the four countries included in the study.

The procedure described above follows the logic of the 'within-site–cross-site' analysis (Miles & Huberman 1994). It does not represent a linear approach in the sense that the research team has not commenced with step 2, 3 or 4 before the previous step(s) has been concluded. It is rather a cyclical process in which the comparative data analysis started once draft country profiles were more or less concluded; the feedback of the national experts were integrated in the comparative analysis 'while working'. The concepts used in this study are different between cultures and depending on the individual case. The delimitation of VET and all related concepts might be a straightforward or more complex task from country to country.

The comparative analysis will focus on similarities and differences between countries. Even though the aim of the study is not to provide separate case studies per country (the country profiles are in that sense a 'by-product' of the study), it will be clear that the specific national contexts of VET policies and systems as well as related policy areas have to be taken into account. This implicates that some (basic) descriptive elements cannot be avoided in this report.

3.3 The role of indicators in this study

For the Lot 2 countries assessed by this study a largely complete and comparable set of statistics is available – as far as economic data, demographic and general education data are concerned (nevertheless different definitions and survey methods need to be considered). These data are collected and compiled primarily by OECD, the Organisation for Economic Co-operation and Development and UIS/UNESCO, the United Nations Educational, Scientific, and Cultural Organisation Institute for Statistics (and by EUROSTAT, the Statistical Office of the European Union, which is important as a reference). Indicators based on these statistics have a relatively high level of validity and international comparability. However, when it comes to educational data we find that indicators are appropriate for general education but often less adequate and even less comparable for VET. Gross Enrolment Ratios (GER) in VET are extremely heterogeneous among different countries and graduation rates as a measure of VET completion are generally of limited value, because of the huge variety of programmes and programme sequences (cf. UNEVOC 2006). On the side of outcome measures for VET programmes and systems (such as levels of competence and proficiency) there are rarely any international comparable studies, which enable assessing VET outcomes. This stands in contrast to outcome measures in general education that are

available from international survey such as TIMMS and PISA. Adult population's performance measures in IALS and ALL do not allow for the identification of the contribution of VET in comparison to the contribution of general education to adult's competencies (cf. Behringer & Pfeiffer 2004).

Especially this study's sections on »VET systems' image and attractiveness« and on the »anticipation of future skill needs« disclose the common lack of adequate indicators based on statistical data. Therefore the study built upon qualitative »descriptors« based on qualitative analyses and evaluations rather than quantitative data. This eventually lead to considerable problems of incomparability in the respective sections of this report.

3.4 The problem of comparison

Comparing is sometimes labelled as the essence of research. Following this assumption, every research, not only the explicitly comparative approaches, are comparing, either different models, or theoretical concepts with empirical phenomena or empirical phenomena in different contexts (e.g. cultures or countries). A review of the literature relevant to the given case of international comparisons in vocational education and training research reveals two main research strands, which involve:

a) research that explicitly targets at questions of VET in connection with the respective cultural, national or societal context;
b) research dealing with issues related to vocational training which stems from the broader sphere of international comparative socio-economic research.

Research of the first type includes descriptive accounts of VET systems as well as historiographic studies on the development of the VET function in different educational traditions or more focussed empirical or systematic studies on certain aspects of VET systems.

In studies of the latter type VET or the relation between education and the labour market often play the role of one explanatory factor for the subject researched. Examples would be studies on the school-to-work-transition or – as is the case with this study – the relationship between VET and competitiveness.

In addition, another distinction can be made between different epistemic orientations. Studies can seek for the identification of *universal characteristics* of VET through comparison, e.g. trends in curriculum development at the global level. This quest for the universal can be identified as a *nomothetic orientation* (cf. Windelband 1894), while aiming at the identification of cultural or *national peculiarities* is labelled as an *idiographic orientation* – i.e. the special features of VET in a certain country or region or culture.

With this monitoring study, both goals are followed: Looking for global trends in vocational education and training (e.g. regards financing) and at the same time check the peculiarities of national developments in the field of VET. The aim of monitoring EU competitor countries is explicitly not to carry out a ranking of education systems. For such a purpose a set of indicators would be needed that might serve as criteria for good or bad VET, which is not at all available (cf. Lauterbach 2007).

The purpose of this study rather is to identify possible learning fields, especially for EU's VET policy by comprehensively describing, analysing and interpreting the VET policies of the competitor countries. This procedure requires two major steps, first to develop a comprehensive understanding of the respective country's VET system, its embeddedness and its interactions with policy, administration and institutions. Secondly, we carry out a comparison by identifying similarities, functional equivalents (homologous phenomena) or distinct differences. For conducting international comparisons indicators can play an important role in supporting the analyses and interpretations, but they need to be grounded in the cultural and social contexts and circumstances, which gives them meaning (indicators as such rarely have a meaning for international comparisons). In this study we use indicators carefully, mainly because they are not suitable to support value judgements without considering in-depth context knowledge, and because very often their construct validity is insufficient (see section 2.3). In fact, sometimes it might well be that exactly the non-existence of an international indicator makes a practice or policy interesting, because it represents a genuine innovation that has not found its way across the world, yet.

3.5 Definitions and concepts of VET

The usage and understanding of the terms Vocational Education and Training (VET), Technical and Vocational Education and Training (TVET), Initial Vocational Education and Training (IVET) and Continuing Vocational Education and Training (CVET) is not identical in the four countries under observation. For our purpose of comparing we prefer broader definitions of the main terms. The definition given in this conceptual introduction is intended to serve as a reference point for understandings prevailing in the countries monitored.

This study builds on a comprehensive conceptualisation of Vocational Education and Training (VET), that is comprehensive enough to provide the possibility of integrating diverse national VET systems and policies. In this study we adopted a definition of Technical and Vocational Education and Training (TVET) provided by UNEVOC. This definition is widely congruent with others such as the clarification given by Descy and Tessaring (2001: 7). Although Descey and Tessaring (2001) use the term vocational education and training their understanding is very close to the definitions using TVET: Even though VET does not explicitly refer to »technicale« it nevertheless includes it and refers to it since most of the contemporary workplaces incorporate technology. In the end any selection of a favourite definition appears arbitrary. The choice in favour of the definition presented was made, because the chosen UNEVOC definition of TVET is better known among the experts of the countries monitored by this study – but in the course of this study the acronym VET is used, keeping in mind that the meaning and usage of VET and TVET are almost the same.

Technical and Vocational Education and Training (TVET) is defined as referring

> »to a range of learning experiences which are relevant to the world of work and which may occur in a variety of learning contexts, including educational institutions and the workplace. It includes learning designed to develop the skills for practising particular occupations, as well as learning designed to prepare for entry or re-entry into the world of work in general« (UNESCO-UNEVOC 2006: 15).

TVET is assumed to cover both, the initial vocational education and training that enables younger people to enter the labour market for the first time, and the continuing vocational

education and training, which is done by adults during subsequent periods of their working life. While the former is a development of initial skills, the latter serves the purpose of upgrading, expanding or intensifying skills or sometimes re-skilling for a different pathway on the labour market.

In its basic meaning TVET embraces formal learning, which is an organised and structured activity whose outcomes are accredited. Nowadays it also encompasses non-formal and informal learning.

Non-formal learning is an intentional learning mode that is a result of organised action and might take place within or outside work, and, most important, is not accredited. Informal learning is an unintentional mode of learning, which in most cases takes place outside the working life or educational institutions and is often not structured and not accredited. Evidently, existing classification schemes such as ISCED (UNESCO-UIS 2006) are severely underestimating these forms of learning and thus are neglecting a large portion of qualification and skill formation. Considerable attempts are being undertaken in Europe to cope with the issue since some years and it is tried to develop measure that allow the assessment and recognition of these not accredited forms of learning (cf. Bjørnåvold 2001, also OECD 2003).

Excursus: Learning outside VET

At this point it seems to be important to acknowledge that a lot of learning takes place outside the formally established mechanisms designated to the learning of the workforce. In a recent report for the European Commission among others the following features of workplaces have been identified as advantageous for providing learning opportunities:

> the completeness of a job, the variety of tasks in a job, difficulty (or problem solving opportunities) of a job, autonomy, social contact opportunities, organisational tasks and information supply (Huys et al. 2005: 5).

Other studies come to similar conclusions with regard to learning in work processes (Boreham 2002, Eraut 2004, Skule & Reichborn 2002). Competence-building processes are often highly contextualised and vary with sectors, business processes and use of technologies. In this respect, the contribution of VET to the development of competences in the workplace is highly context dependent. VET can be seen as a partly independent variable that has to be taken into account as a variable shaping work processes. On the other hand the way work is being organised is a crucial feature, which needs to be taken into account when looking at the possibilities of development of competences within work processes. In addition the findings of a Danish group of researchers concluded that there is a close connection between how people work and learn in a country and the way firms' innovate. Discretion in organising individual work and job profiles and work that involves problem-solving and learning correlates positively with a type of innovation labelled as 'endogenous' innovation. Interestingly, other forms of work enrichment do not correlate positively with this type of innovation, but are rather associated with incremental innovation, such as for example in Japan (Arundel et al. 2006).

VET as a Working Concept

With the given brief definitions it shall be feasible to analyse and understand the competitor countries' VET approaches. Particularly, the question of the relationship between IVET and CVET is important as it allows for the assessment of transitions between education and work. Another crucial dimension is the coherence of education and training measures that can vary between scattered modules on the one hand and the systematic coverage of a vocation or career on the other hand.

One question at stake for the European countries is in how far the findings suggest an extension or re-formulation of the understanding of VET, IVET and CVET including non-formal and informal learning: Do the practices of the rapidly developing competitor countries particularly challenge European VET systems and can we develop some paths of VET policy learning?

4. Background information on VET and its contexts

4.1 Structural and economic contexts

The key sectors driving economic development in the countries under investigation are those that show:

a) superior (global) economic performance,
b) best competitiveness,
c) highest net creation of jobs,
d) the greatest demand for skills and qualifications.

Evidently, the countries discussed are in transition – politically and economically. At least for China and Russia, if not for all countries under investigation, it holds true that the economic liberalisation was and still is much faster than the political transformation.

Comparative Findings

With China, India and Russia, three of the largest emerging economies are included in the analyses while Korea belongs to the twelve largest economies in the world that went through fast growing decades since the 1960s. India and China share a high growth of GDP (India in 2005/2006 of 9%, China an annual average of 8–10% in the last decade). Russian GDP is growing annually with an average of 6.5% (since the financial crisis in 1998). Korea will reach an estimated GDP growth of 4.5% in 2007.

Country	GDP (Billion US-$)	GDP per capita (US-$)	Real GDP growth (2004-2005)
China	5333,237045	4090,78	10.40 %
India	2340,994017	2125,63	9.05 %
Korea	1027,373829	21342,23	4.20 %
Russia	1697,541489	11861,47	6.40 %

Data retrieved from: OECD.StatExtracts http://webnet.oecd.org/wbos/index.aspx (15.9.2008)

Table 2: GDP, GDP per capita and Real GDP growth (2005)

Whilst major parts of the Russian GDP growth are driven by the primary sectors (oil and gas), in India and particularly in China the basis for growth are manufacturing industries, machinery, electronics and ICT, and telecommunication. Trends in science and technology policy and public spending in China indicate that biotechnology will be an upcoming industry in the future. In the case of India the electronics and software industry is expected to strengthen, which will create a demand pull for special skills needed in these industries. Korea's current strengths in the electronics, computer and telecommunication industries with a particular emphasis on semi-conductors and flat screen displays will prevail and therefore generate a demand for workers and technicians in these fields. Russia, eventually, will continue to reinforce its manufacturing industry, but in the mid-term (5 years) no major upswing in this sector is expected.

The average labour participation rate (KILM 1, Key Indicators of the Labour Market according to ILO) is at 82% in Russia and 75% in Korea – with a moderate gender bias in favour of male participation in Russia and a more clear-cut gender bias in Korea. For India and China no reliable data are available, because of pronounced urban–rural divide. For both countries the available data are referring to the urban growth regions, while for rural areas only estimations are given – if at all. These regional imbalances, however are true for all four countries, and they also apply for national unemployment rates. The unemployment rates of Russia is about 6.7% (2006), China's unemployment rate is at 4.2% (2004). The latter Chinese figure covers only official urban unemployed, no rural unemployment and no unregistered urban unemployment; to include these figures would lead to an estimate of 10% or skyrocket to an estimated 23% of the total labour force (according to RAND Corporation). Similarly, India's unemployment figures are influenced by poor data availability in rural areas: A national average is given with 7.8% in 2006 (est.), with approximately 13% youth unemployment is considerably higher.

With China, India and Russia we observe three countries that have distinct imbalances between urban and rural areas, which have furthermore agricultural sectors that employ disproportionately more people as could be expected from the agricultural GDP share. This is a clear hint that the major contribution form of economic activities to development and productivity will stem from the industrial and service sectors. This justifies focusing the investigation on TVET policies in these sectors, and particularly on the expanding sub-sectors within manufacturing and services. In all countries the service sector seems to be the one with the best prospects for growth, job creation and thus with a strong need for skilled personnel, which makes it likely that VET policy puts emphasis on these areas.

China

In China the initial impetus for the economic liberation was due to Deng Xiaoping's policy of opening China up towards the principles of a »market economy with Chinese characteristics«. This process advanced with rapid strides towards the current situation of a GDP of 2.094 Bio Euro (Statistics China 2007). This is equivalent to an average annual growth of 9%. There is hardly any other economy on the globe developing so fast and steadily during the last 25 years. The internal distribution of the GDP among the primary, secondary and tertiary sector in China showed the following pattern in 2004: the primary sector contributed 15.2 % to GDP, the secondary 52.9% and the tertiary sector 31.9%. Together with the time series data of Table 3 this indicates a clear shift from an agricultural and primary goods based economy – as China was until the mid-1970s – towards an industrial economy with a strong emphasis on services. However, the primary sector still employs the largest share of China's active workforce: by 2003 there were 365.5 million people working in the primary sector, 160.8 million in the secondary sector and 218.1 million in the tertiary sector, which also includes »non-modern« services such as the cultivation of land, and reforestation. As productivity is distinctly higher productivity in the industrial sector – compared to the agricultural sector – and there are many agricultural services, it can be concluded that the agricultural sector is the weak element in Chinese development. While the industrial development – located to the coastal area (Pearl River Delta, Shanghai etc.) – is the heart of the Chinese miracle, which attracts millions of migrant workers, it must be recognized that the labour participation rate is

very diverse with very high figures in cities like Shanghai and Shenzhen. During the liberalisation many public and government-owned companies had been re-structured in order to increase their competitiveness, which lead to the hitherto unknown phenomenon of unemployment.

Year	Agriculture		Manufacture		Service	
	Output %	Employment %	Output %	Employment %	Output %	Employment %
1990	27.2	60.1	41.6	21.4	31.2	18.5
1995	20.5	52.2	48.8	23.0	30.7	24.8
2000	15.9	50.0	50.9	22.5	33.3	27.5
2004	15.2	46.9	52.9	22.5	31.9	30.6

Source: China Statistical Yearbook 2005

Table 3: Development of Chinas economic sectors (1990-2004)

The official unemployment figures indicate an unemployment rate of 4.2% in 2004. This is just the top of the iceberg. There exists a considerable, yet difficult to estimate hidden or unofficial unemployment rate, which consists of »released« workers, i.e. workers that are officially employed in the state-owned enterprises but are actually laid off. The biggest uncertainty of the unemployment statistics arises from the fact that for the rural areas there are no unemployment figures available. The same problem holds for the migrant workers.

The share of female workers in the Chinese employed workforce accounted for 44.8% (in 2004). There were some sectors of the economy where the female participation is higher than the average, e.g. the sector of health, sports and social services with a female participation of 59.1% or the hotel and catering services with 55.2% (Zhongguo 2007).

Overall, the service sector is gaining importance and contributing increasing shares to GDP and employment, while employment in agriculture is decreasing. Generally speaking, the key driver for China's economic performance (still) is the industrial sector. Therefore the major field of short-term improving, maintaining or re-designing VET policy is industry and manufacturing while service sector will be in the focus of VET policy and activities in the future.

India

In the case of India VET development is intertwined with economic restructuring. The Indian economy remained protected until the beginning of the 1990s. After a phase of economic reforms, which addressed macro economic imbalances, low productivity and a dramatic fiscal deficit accompanied by a double-digit inflation, the economic reforms initiated and supported a process of structural change in favour of the tertiary sector of Indian economic structure. As indicated in Table 4 the primary (agricultural) sector contributed only 23% to GDP in 2004-05, while the secondary (industrial) sector amounted to 23.8% and the tertiary (service) sector totalled up to 53%. The economic reforms initiated and supported a process of structural change in favour of the tertiary sector, which increased its share to GDP sharply during the 1990s and the first years if the new millennium, starting with a 40% share

in 1990-91 and ending with 53%. This development corresponds with a distinct decline of the primary sectors share from 35% (1990-91) to 23% (2004-05). The secondary sector's share of GDP decreased only marginally between 1990-91 to 2004-05 (from 24.5% to 23.8%).

The employment distribution between the three sectors in 2005 shows the largest share for the industrial sector (60%), the tertiary (service) sector employs 23%, and the primary (agricultural) sector 17%. But the other side of the truth is that for about 93% of total employment of about 399 million in 1999-2000 (482 million in 2005) the employment was informal or »unorganised« in the terms of the National Accounts Statistics (NAS) (Sakhtivel & Joddar 2006: 2108). [3]

Year	Primary	Secondary	Tertiary
1990-91*	34.93 %	24.49 %	40.58 %
1999-2000**	27.65 %	23.09 %	49.25 %
2004-05**	22.97 %	23.80 %	53.22 %

* Based on 1993-94 prices ** Based on 1999-2000 prices
Source: Economic Survey, GoI, 2005-06

Table 4: Sector-wise change of India's Gross Domestic Product (GDP)

Total unemployment in India was estimated to be around 35 million persons in 2002, of which three fourth are in rural areas, and three fifth are educated. There were around 39.3 million job seekers registered in employment exchanges throughout the country in December 2005. The placement in jobs was about 173 thousand in 2005 (with a corresponding number of vacancies at around 350 thousands). Over 5 million persons with graduate or higher qualifications are waiting for jobs; annually 5 to 5.5 million job seekers are registered.

A gender-wise analysis of the total number of job seekers reveals that up to the end of June 2006, the share of women seeking jobs among the total job seekers was around 27.79%.

The economic sector with the strongest dynamics is the tertiary sector. It has maintained a steady growth pattern since 1996-97 (with an exceptional decline in 2000-01). Trade, hotels, restaurants, transport and communication witnessed the highest growth levels followed by financial services, and community, social and personal services[4]. Especially the growth in tourism and tourism related services holds a large potential for employment growth as do IT enabled services like Business Process Outsourcing, which is a new, rapidly expanding sector. Besides these, some selected industrial sub-sectors like the garment industry and the pharmacological industry ranging from drug production to clinical research promise strong employment potentials. In the primary sector, particularly the agro-industry and agro-business as well as the afforestation for pulp, fuel and power are expected to generate future employment. Especially new jobs created in the IT and pharmacological sector require a

3 http://www.indexmundi.com/india/labor_force.html (24.9.2005)

4 www.indiaonestop.com/economy-macro-view.htm

higher qualifications which challenges the VET system and require the foresight of skills as we will see later in this report.

Korea

Korea is one of the Four Asian Tigers (Taiwan, Singapore, Hong Kong and South Korea), it began its rapid economic development in the mid-1960s. It was the Asian financial crisis in 1997 that was a serious set-back for Korean economic development. With the support of the International Monetary Fund (IMF) and the obligation to reform the financial system, Korea's economy did recover and its GDP (nominal) per capita is nowadays at US $ 19.624, which is a level comparable to many EU countries (such as Portugal, Slovenia and the Czech Republic). The sector-wise distribution of GDP and corresponding employment is as follows: In 2003 the primary sector's share of GDP amounted to 3.2% while the corresponding employment accounted for 10%. The industrial sector contributes 35% of GDP and employs 20% of the workforce. The tertiary sector contributes 62% to GDP and employs 63% of the workforce[5].

Korea's nowadays key sectors of economic activity are automobiles, electronics, shipbuilding, steel and high-tech products like digital monitors, mobile phones, computers and semi-conductors.

The workforce comprises of 24.4 million people in 2007, the overall labour participation rate is around 62%. The cohort of the 15-19 years old shows a total labour participation rate of 7.5%, which jumps up to 54.6% in the cohort of 20-24 years old persons. The labour participation rate for the persons 25 years to 60 is approx. 74% with a significant higher portion of male participation (see Table 5).

(in %)

Age / Sex	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65+
Total	7.5	54.6	73.2	73.4	77.4	80.3	78.8	74.1	64.7	55.8	30.5
Male	6.3	48.4	78.9	92.9	94.7	94.5	93.1	89.7	79.9	68.5	42.0
Female	8.9	59.1	67.5	53.1	59.6	65.6	64.4	58.5	49.7	43.8	22.7

Source: Korea National Statistical Office. 2007

Table 5: Korean labour participation rate by age & sex (2006)

The overall unemployment rate has decreased from the peak value in the end-1990s (6.8% in 1998) down to 3.5 in 2006 (Korea National Statistical Office 2007). Table 6 shows that unemployment is highest among the young people (between 15 and 24 years). Remarkably, female unemployment rate generally is below the male unemployment rate – with only one exception (see Table 6).

5 Workforce is defined as the economically active people aged 15+ or working age population.

(in %)

Sex \ Age	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65+
Total	10.4	9.9	6.5	3.7	2.4	2.3	2.3	2	2.4	2.3	0.7
Male	10.4	11.9	7.9	4.2	2.6	2.6	2.7	2.3	3.1	3.0	1.0
Female	10.5	8.8	4.8	2.8	1.9	2.0	1.7	1.5	1.2	1.4	0.3

Source: Korea National Statistical Office. 2007

Table 6: Korean rate of unemployment by age & sex (2006)

Russia

Russia's economic development since 1991 (the foundation of the Russian Federation) can be described as an export-driven growth based on raw materials like oil, gas and different sorts of metal.

The labour force participation rate[6] in 2004 was about 76.6%, but marked regional and local differences have to be considered (State Statistical Yearbook 2006). In absolute figures the size of the labour force (in terms of »economically active population«) is about 74.2 million persons in 2006 (estimated; in 2005: 73.8 million).[7] The rate of unemployment lies at 6.7% in 2006 (estimated) and has been steadily declining since 2000 (9.8%). The unemployment rates do not differ greatly between gender: The unemployment rate for men was at 7% while for women it was at 6.5% (in 2006). The cohort with the highest unemployment rate is between the age of 20 and 24 with around 21% of all cohorts (male and female figure do not differ significantly).[8]

Russia ended 2006 with its eighth straight year of growth, averaging 6.7% annually since the financial crisis of 1998. In overall terms Russian GDP in 2006 is estimated to be the ninth highest in the world. However, the economic development is extremely uneven distributed. While the Moscow region is an affluent metropolis contributing one-third of Russia's GDP with only one-tenth of the population, the rural and the Asian regions do severely lag behind overall development.

4.2 Historical development of VET systems, policies and practices

The point of reference for the sketch of the VET systems in the monitored countries we take the transition towards industrialisation, because this was in most cases the stage when the institutionalisation took place. This is at least for two countries of the sample (China and Russia) superimposed by recently undergone transformations from planned towards market economies, which, obviously came along with re-directions of prevailing and institutionalised

[6] Labour force participation rate generally defines the ratio between the labour force (employed or unemployed, but searching employment) and the size of their cohort or the overall working age persons in an economy.

[7] http://www.gks.ru/wps/portal/!ut/p/.cmd/cs/.ce/7_0_A/.s/7_0_3QE/_th/J_0_9D/_s.7_0_A/7_0_2BD/_me/7_0_2BC-7_0_A/_s.7_0_A/7_0_3QE (12.11.2007)

[8] http://www.gks.ru/free_doc/2007/b07_12/06-09.htm (12.11.2007)

VET systems. Thus it is important to address these important changes in the VET systems and policies.

We can see some commonalities between the four countries' historical genesis of vocational education and training. First, their transitions towards market economies or liberation or opening up the economies did happen only lately: Since the mid-1960s in Korea, in the 1970s in India, in the 1980s in China, and Russia in the beginning 1990s. Of course, all countries had some ancient heritage mostly going back to the medieval, which had been developed into modern times, but their economic transformation showed that they were inadequate to respond to the challenges of producing under the conditions of globalisation. So that they had to undertake measures in order to be capable to cope with the requirements of a production at high quality standards for global markets.

All countries started the transition of their traditional, predominantly crafts-based and agricultural apprenticeship or vocational training.

China

For China the historical roots of VET[9] in a modern understanding as an organised system can be traced back to the beginning of the 19th century when during the Quin Dynasty first attempts to implement a vocational training system were made in agriculture. Since the 1860s industrial education became more common. The main contents of vocational education for industrial production was to study Western technology and train manpower with practical skills.

With the »Schooling System of 1902« an initial set of systematic regulations for vocational education was implemented and with the establishment of the National Society for Vocational Training and Education (zhong hua zhi jiao she) in 1917 the conditions of joint provision of vocational education by the education sector and the industrial sector were laid in China. However, the slow economic progress and backward industry hampered the development of vocational education in China before 1949. Since the founding of the People's Republic of China in 1949, vocational education underwent a process of adjustment, rectification, improvement and steady development. During the 1950s thousands of specialised secondary schools and skill worker schools were established, while in the 1960s the number of agricultural secondary schools and other vocational schools grew steadily – until the onset of the culture revolution.

In 1980, the »Report on the Structural Reform of Secondary Education«, ratified by the State Council, pointed out to reform secondary education and to develop vocational education to meet the needs of socialistic modernization of economy. During the 1980s and the 1990s various political decisions have been made in improving and developing Chinese VET system to satisfy the requirements of the new economic and social development. As a major breakthrough, the first »Vocational Education Law« in China was formally promulgated and

[9] The information have been mainly retrieved from the China Education and Research Network; cf. http://www.edu.cn/20010101/21929.shtml (26.2.2008)

implemented in 1996, providing legal protection for the development and perfection of vocational education.

In summary, the institutionalisation of a VET system in China until the mid 1990s took place in three steps: Since 1902 a vocational track was established as a component of the school system, and during the second and third decade of the 20th century the legal regulations defining government's liabilities to offer technical and vocational education and training were developed further (second step). During the crucial third stage the legal framework was improved and with the enactment of the VET law in 1996 the foundation for a »sustainable promotion of technical and vocational education and training« had been laid. The new law on VET valorises VET in China, which interacts positively with the fast economic development of China since the 1990s. The establishment of a »socialist market economy« increased the level of qualification required from the workforce and intensified the nexus between economy and VET.

India

Vocational education and training in modern India is building upon various ancient traditions of education. One form is the so-called ashram system which comprises a holistic idea of education offered to students, who lived together in the *Gurukul.*[10] This education was wholesome and not demarcated into levels and forms, and it included knowledge, character formation and skill training. All this took place during the day-to-day work in the Ashram (e.g. cooking, cleaning, farming, gardening, cattle rearing). Besides this, learning in families played an important role; this learning was related to the vocation that was attributed to the families. This system prevailed and developed further, so that until the 19th century, India had a reasonably good and functional system of vocational and technical education (Rajput 2000). During the process of progressive institutionalisation of education as such, vocational training was re-oriented to develop skills and competencies, which match certain occupations. The National Policy on Education in 1968 recommended a bifurcation of secondary education into two paths: a vocational and an academic path.

Korea

The historical development of vocational education and training in Korea did not commence with the industrialisation of the country, but is perceived as becoming a key factor for the economic development of Korea since the 1970s. The most important structural peculiarity in Korea's VET system was and is the separation of vocational training and vocational education. While the former is mainly governed by the Ministry of Labour, the latter is under

[10] »A Gurukul (Guru refers to teacher or master, Kul refers to his domain, from the Sanskrit word kula, meaning extended family) is a type of ancient Hindu school in India that is residential in nature with the 'shishyas' or students and the 'guru' or teacher living in proximity, many a time within the same house. The Gurukul is the place where the students resided together as equals, irrespective of their social standing. The students learn from the guru and also helps the guru in his day-to-day life, including the carrying out of mundane chores such as washing clothes, cooking, etc.« http://en.wikipedia.org/wiki/Gurukul (10.3.2008)

the auspices of the Ministry of Education. The major institutions for vocational education are vocational high schools and junior colleges; the main institutions for vocational training are public and private vocational training institutes, and firm-owned HRD centres.

Russia

The Russian system of VET has a strong legacy in the communist era during which education, the distribution of manpower, and salaries were planned as one component of the Soviet planned economy. The IVET system was structured along a hierarchical three-level system of qualification as were the qualifications and the salaries. In the post-Soviet era, after founding the Russian Federation in 1991, the VET institutions are under the auspices of the Ministry of Economy and Branches. With accelerated privatisation of economy after 1991 the state ministries had to take over the VET institutions and their financing. The structures developed since then are aligned along of three institutional components: vocational schools, medium qualification for technicians (SSUZ, secondary specialised schools/institutes), and higher qualification for leading personnel (VUZ, university-level institutions).

As major outcomes of the changes evoked by the transition from planned to market economy we have to consider the elimination of (i) the infrastructure of practical learning (training workshops), and (ii) the guaranteed transition from school to work.

The turn to market economy and the exposure to the global markets, showed that, after 70 years of Soviet rule and isolation from the West, the Russian VET system, its methods, contents and equipment, was far away from international standards.

4.3 Definitions of and demarcations between IVET and CVET

This section is intended to disclose the actual use of the crucial terms (such as initial and continuing VET, non-formal and informal learning) by relating the country-specific usages and assigned meanings to the clarifications given in chapter 2.5 on concepts and definitions. A major goal lies on the question how clear-cut the distinction between IVET and CVET is made, because this is crucial for the subsequent analyses on financing, the institutional framework and for the anticipation of skill needs.

Comparative Findings

With the exception of Russia – and to a lower extent also India – the countries under investigation do not make clear distinctions between initial and continued VET. In the case of Russia this prevailing but presumably gradually vanishing distinction must be traced back to its soviet legacy or the time before.

All countries in this report do not recognize the role of non-formal and informal learning and consequentially there are no forms of validation existing. Deeper investigations on the organisation of the VET systems will create insights into emerging new developments of validation of non-formal and informal learning.

China

China uses the term vocational education and training (VET) as a generic term for different types and modes of vocational and technical education and training. This also includes initial and continuing training at various education levels. Thus, the Chinese understanding and usage is more close to the term »technical and vocational education and training« (in Chinese »zhi ye ji shu jiao yu« denotes approximately the term TVET used by the UNESCO). Furthermore there are indications that China's current VET system does not maintain a clear and unambiguous distinction between initial VET (IVET) and continuing VET (CVET). Both, IVET and CVET eventually do belong to the same uniform system, which is defined by the VET Law of the PR China of 1996.

Other types of VET-relevant learning such as non-formal and informal learning are neither explicitly part of the law nor are they accredited. The terms profession, vocation and occupation are translated/approximated by the term »zhiye« which following Shoufu Li denotes »a work that is carried out according to one's qualification and character, and by which one can earn the living for himself and his family and concurrently serve the society«.

India

In India the VET system consists of Initial Vocational Education Programmes, Technical Education, which is an Initial Technical Education, and Technical and/or Vocational Training that is continued Vocational Education and Training.

Although the terms IVET and CVET seem not to be commonly used in India, they can be definitely allocated to completely distinct sub-systems of VET as regards to management, target groups, purpose and delivery mechanisms.

The above distinctions into different programmes indicate the embeddedness into a broader distinction that regards initial vocational education programmes as 'education' while continued programmes are seen as 'training'. The initial is 'formal' in the sense that it is more structured with regard to the institutions, age and entry qualifications, the courses, duration, the curricula, the modes of transition, evaluation and certification, qualification and training requirements of teachers. These requirements may or may not be fulfilled in the case of 'continued' VET.

In India the terms profession, occupation and vocation denote different hierarchical levels in the job markets: professional indicates the highest level, while the others refer to middle or lower levels (e.g. an engineer is a professional while a mechanic is not referred to as a professional). The term technician is also in use and it often refers to those who have successfully run through an apprenticeship (or craftsmanship) and were receiving additional training after graduation.

Korea

Korea is similar to China in that it does not clearly differentiate between initial and continuing VET. Yet, in accordance with the widespread usage of the term in Europe, IVET generally refers to the vocational education and training that is provided (and received) before entering the labour market. CVET in Korea, is playing a role as 'adult learning' or 'lifelong

learning' referring to education and training received during employment. IVET and CVET overlap to a certain extent in terms of the institutions providing it. Companies' HRD centres and private institutes in Korea are representative institutions offering CVET. Open universities, junior and technical colleges in Korea play dual role both as IVET and CVET providers.

Non-formal and informal learning do not play a significant role as a part of institutionalised IVET or CVET in Korea: In general, both education and training providers and learners do not recognize non-formal and informal learning.

The Ministry of Labour has established a labour market oriented training programme for the unemployed, called 'Training of the Unemployed'. This is a separate training programme. In terms of the learners, it could be considered as both IVET and CVET, because it covers both the unemployed youth before they enter the labour market and those who are in the labour markets and lost their job.

Russia

In contemporary Russia the distinction between IVET and CVET is maintained at various levels of the education sector (primary, secondary and tertiary vocational education). IVET, »nachal'noe professional'noe obrazovanie« (NPO) is provided in vocational schools or lyceums. Secondary vocational education at medium and specialised levels provides »srednee (medium, middle) professional'noe obrazovanie« (SPO) at secondary specialised schools (»tekhnikum«) or colleges.

Furthermore, a permanent (or lifelong) vocational education and a continuous (complementary) vocational education are provided in different educational institutions of nearly all sectors of the education system (recently even in general education schools because of free capacities). In addition there are retraining courses (»perepodgotovka«) offered by the occupation service (»sluzhba zanyatosti«), which are mostly given to education institutions, because the service has only a very small number of such institutions of its own.

As a legacy of the soviet system, the official education system still nowadays distinguishes between IVET and CVET, but recently there is a merging process going on within the institutions, which is supported by the government. This new development follows the maxim of transforming educational institutions into service providers on the quasi market of VET. A competition for state grants, which in the past was mainly an issue for tertiary education, now also spreads over IVET and CVET. Recently a co-operation of the Ministries for Health and Social Development was launched with the purpose to let private firms develop IVET models. If successful these models shall be disseminated and thus will reinforce a tendency towards a VET market (embracing public and private suppliers).

Consequently, a gradual integration of CVET into IVET and higher education institutions is taking place. This process presumably follows similar developments within IVET and CVET in private business.

Non-formal and informal learning as a part of vocational education and training is widely ignored and neglected by the VET providing institutions. If »breaking-in« within companies

is considered to be part of non-formal learning, there is plenty of it taking place in Russian companies, but there is no certification.

Also with regard to the terms profession, occupation and vocation the soviet legacy still determines the use of terms like specialist and/or professional which is close to the notion of 'vocation'.

4.4 Organisation of the IVET systems

The analyses on the organisation of initial VET are building upon the country-specific practices of distinguishing between IVET and CVET (cf. the preceding chapter) as well as on the conceptual clarifications given in chapter 2.5. Thus, descriptions of the countries' education systems, particularly the relationship between general and vocational pathways, are inevitable. The analytical sections are addressing issues that were raised in the conceptual part, such as the structural distribution between general and vocational enrolments, the opportunities for »lateral mobility« between vocational and general education, the transitional paths into employment, and the matters of entry and leaving exams and certificates.

Comparative Findings

As a first general assessment we can state a broadly similar distribution between those graduates from primary or lower secondary education that enter a vocational path of education against those who remain in the system of general education and proceed further in secondary education (or tertiary). The following Table 7 compares the respective figures. Even though there might be a certain incompatibility of the figures, because of different 'points of transition' the picture we get is that in all countries the pathway of ongoing general education is the preferred track of the youth: Between 60 to 70% of the respective country's cohort continue their studies in the general education while 30 to 40% choose the vocational tracks. This evidently is an issue to be raised in the section on attractiveness.

Country	General Education Track	Vocational Education Tracks
China	39.3%	60.7%
Korea	30.0%	70.0%
India	40.0%	60. 0%
Russia	32.5%	67.5%

Table 7: Distribution of Students' different pathways in Secondary Education

For each observed country, there are social, structural, institutional and economic reasons that might help to explain why the IVET path is avoided by larger portions of youth in the observed countries. In the case of Korea and China the neglect of the vocational path is often traced back to the Confucian heritage, which interprets general education as the core or the essence of humans and thus the learning contents relating to it are rated higher than the specialised knowledge and skills relevant to working life and doing a job. This can be assumed to be the basic explanation for the dismissal of vocational education and training

against general education. In the case of Korea this is expressed in the attitude of perceiving VET as a second-class education, which eventually marginalises vocational education and training as a sub-system that has to accept those students who are excluded from the general education path. Evidently, this ascribes a role of integration into society (inclusion) to the IVET system, which is not easy to fulfil. Besides this, there are other factors that are making the situation even worse: The fact that workers »who took vocational education are at a disadvantage in terms of promotion, wages, and equal opportunities at the workplace, which leads to even lower social recognition of vocational education and a general reluctance among students to enter vocational education institutions« (Lee 2006: 11). There are an increasing number of vocational schools that is trying to overcome this negative image by providing more and better opportunities for graduates to continue to colleges and universities rather than supporting their transition into the labour market. The advantage of improving the image is thus compensated by the loss of specific vocational content and practical knowledge needed for working life. Eventually, vocational education is transformed into a preparatory step for college entrance.

This underlines the ambiguity that comes with the openness of vocational education and training for allowing the switch to general educational pathways: It can weaken the vocational education and training (with regard to the contents) and reduce the number of applicants for the vocational track.

China faces a similar situation as Korea. The vocational track is perceived as a second or class education, and, related to the negative image, the vocational schools do not have the necessary resources to provide an appropriate IVET. Since they traditionally cannot provide sufficient practical experiences, the real preparation for working in production is done by on-the-job-training in companies.

Russian IVET shares the fate of Chinese and Korean systems, though there is no Confucian heritage existing: Within IVET sector there was a long lasting imbalance between the three-tiered structure system of NPO, SPO and VPO (higher education) and the needs of the labour market. This and the socialist overemployment have led to a devaluation of certificates. Vocational schools already in the 1970s and 1980s lost attractiveness and increasingly became the place for the lowest strata of society. Enterprises took care for educating their own workforce – but already in Soviet times did no longer care for the whole local youth. VET education was characterized by very narrow specializations (a Soviet legacy at least going back to the five year-plan industrialization of the nineteen-thirties or even to Taylorism of the nineteen-twenties). It was closely bound to the needs of big economy plants, which often built a local or even regional monostructure.

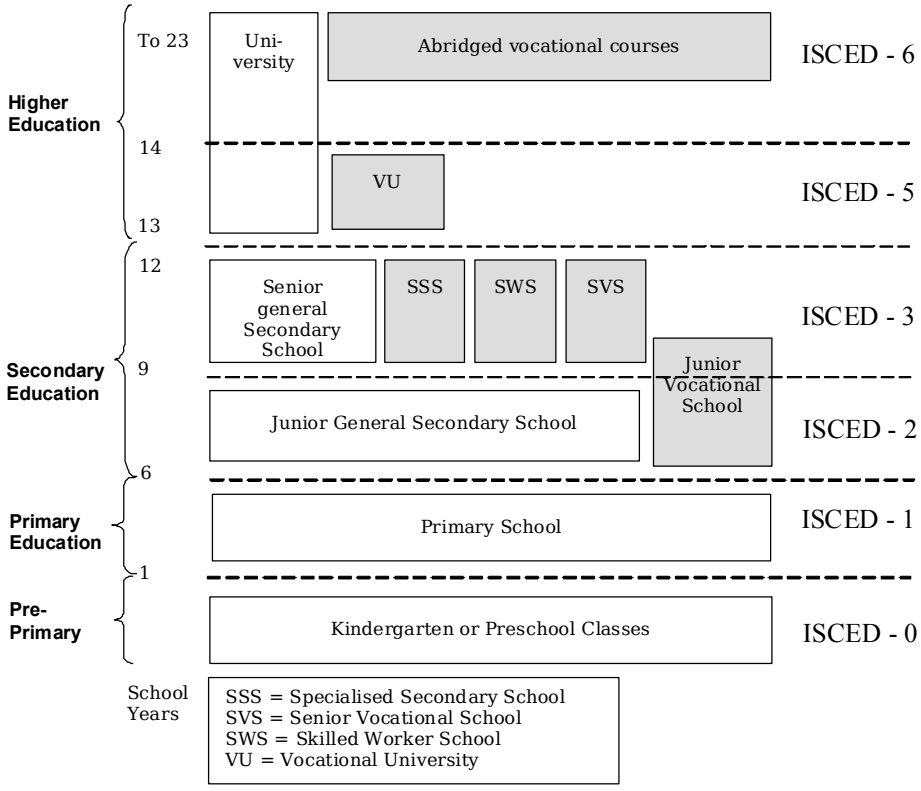
China

Despite China's smooth distinction between IVET and CVET, the major efforts, actions and structures that should be accounted to the initial VET can be specified as the following. IVET is building upon two pillars: school-based vocational education (1), and training (2). School-based VET is provided at Junior and Senior Vocational Schools, Skilled Workers Schools and Specialised Secondary Schools. The tertiary sector provides vocational education at Vocational Universities and Advanced Skilled Workers Schools (see the grey shaded boxes

in Figure 1). The major differences of these school types lie in the different administrative responsibilities. The two bodies responsible for the vocational education schools are the Ministry of Education (MoE) and the Ministry of Labour and Social Security (MoLSS).

The vocational schools (on secondary level) do provide courses at senior level that last 3 – 4 years and end up with a leaving certificate and/or a rating certificate according to the MoLSS's vocational standards. The provided courses cover a wide range of programme areas, a clear emphasis though is on crafts and commercial vocations, while the skilled workers schools do emphasize industrial vocations. The entry requirements for the upper secondary vocational education are either a successfully passed entry exam or a leaving exam of a junior vocational school.

At tertiary level there are abridged studies (2-3 years) at vocational universities that prepare graduates for practice-oriented positions in production. In addition to vocational universities there are also vocational and technical institutes providing vocational education at tertiary level. The share of vocational universities' entrants as part of the overall university entrants has reached the mark of 50%. The graduates of the abridged vocational studies receive a leaving certificate and a rating certificate (of medium level) in accordance with the vocational standards of MoLSS.

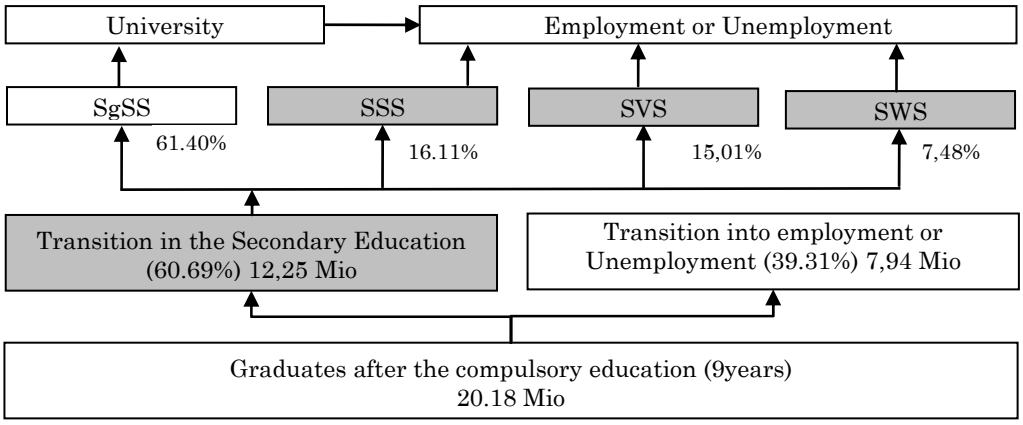


Source: Draft Monitoring Report »China«

Figure 1: China's education system

The possible transitions between the different vocational paths are shown in Figure 2. The figure indicates two remarkable facts: First, at the first transitional break point between primary and secondary education, there are approximately 60% choosing the transition to

secondary education, while 40% go directly into an employment (or unemployment). Thus the typical pathway seems to be the continuing education at secondary level. Secondly, the share of those choosing a vocational track in secondary education is about 40% while the rest is following the track of general education. This clearly indicates the still prevailing Confucian heritage which prioritises general and moral education above specialist knowledge (and education).



SgSS = Senior general Secondary School SSS = Specialised Secondary School

Source: China National Statistical Office. 2004

Figure 2: Transitions inside the Education System (2003)

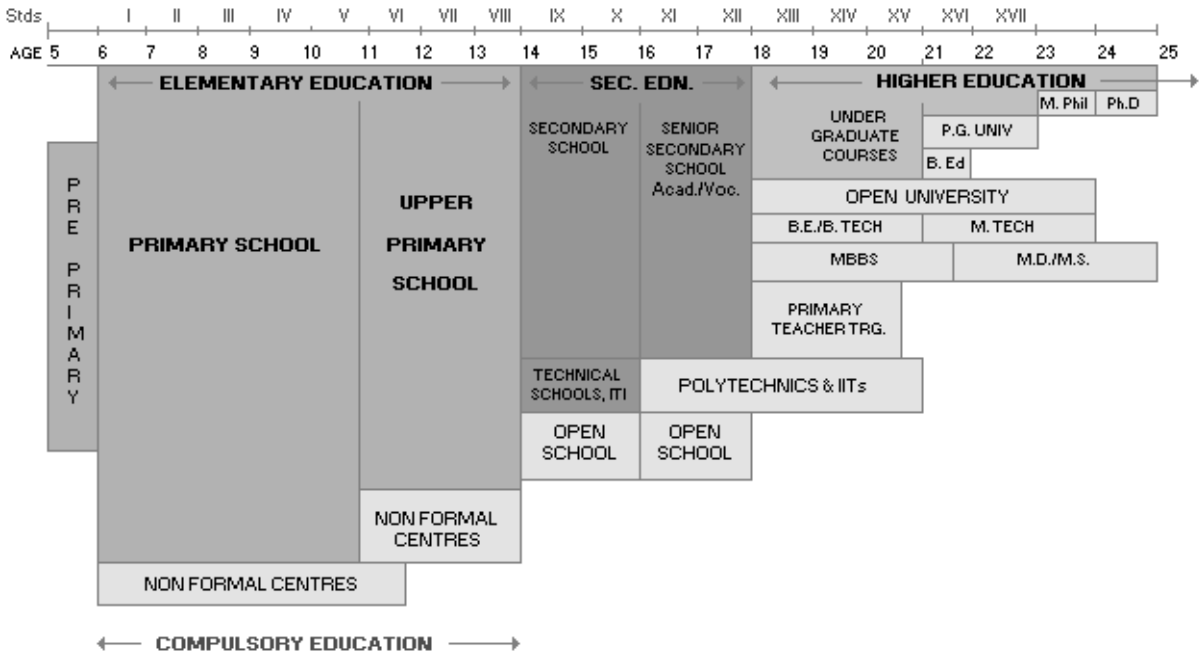
India

India's programme of vocational education and training is under the aegis of the Ministry of Human Resource Development. In accordance with the constitution, education is concurrently subject of the states' and the central government policy. The central government is developing the general VET policy, the training standards and procedures as well as the certification. The state governments are conducting the actual implementation.

In accordance with the observation that IVET and CVET are allocated to different sub-systems of the Indian VET system, IVET is understood as education and CVET is interpreted as training. IVET is mainly offered at schools at senior secondary level. Most of the schools are government schools, but in some states, e.g. Gujarat, many private schools offer these courses, too. Most of the courses are school based, however, these have been perceived as a collaborative model. The theory part and some basic skills are developed in schools with further refinement of skills in the industry (at the real workplace) during practical or on-the-job-training. The course structure recommended at national level includes 70% of the instruction time to be devoted to the chosen vocation and 30% to be divided between language and a basic foundation course. The instruction time of the vocational study is divided between theoretical and practical instruction depending on the respective vocation, however, inculcation of mere skills remains in focus. Sometimes skill acquisition can be furthered during apprenticeship training, however not all the vocational students get this

opportunity. The vocational students are prepared for entry into the world of work at middle level, even though most of them are encouraged to become self-employed.

There is a technical path of education that provides courses at secondary level, which is achieving a Diploma (there is also a tertiary branch of technical education that aims at degree). The diploma paths in technical education are offered in a wide spectrum of areas from engineering towards IT, architecture etc. The courses usually run not less than 3 years, and they require 10th grade pass certificate.



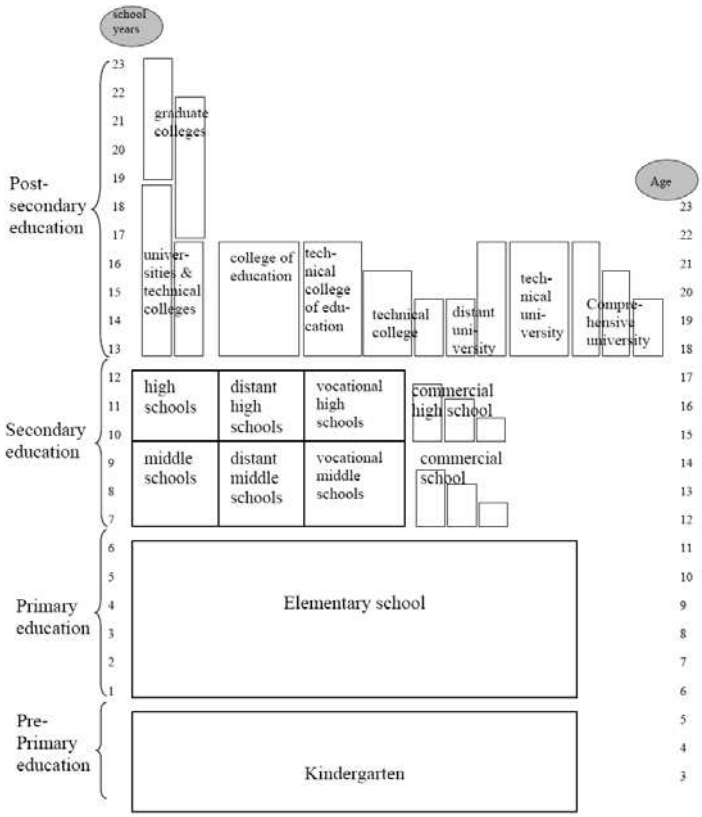
Source: http://www.ibe.unesco.org/en/access-by-country/asia-and-the-pacific/india/profile-of-education.html (4.9.2008)

Figure 3: India's education system

Korea

The Korean education system follows a 6-3-3-4 scheme, where primary school lasts over 6 years, middle school over 3 years and high school follows with 3 year duration. The highest stage covers 4 years (or more) in colleges and universities. In Korea the divide between general and vocational track of education begins at the 10th grade, which is the 1st year in high school: Those who enter the vocational high schools usually graduated from a middle school (junior high, generally 9 years of schooling) or hold a diploma which is equivalent to junior high school graduation certificates.

In accordance with the quoted general understanding of IVET as provided to persons before their entry into the labour market, these initial VET programmes are mostly offered by vocational high schools at the upper secondary level, and junior colleges at the higher education level. The duration of IVET programs at the upper secondary level lasts 3 years and programs at the higher education level last 2 years.



Source: http://www.internationale-kooperation.de/Bildung.jpg (11.5.2007)

Figure 4: Korea's Education System

Prospective graduates from middle schools apply for a vocational high school within their community or sometimes for a famous vocational high school at a distant location and receive admission. Among vocational high school graduates, 30% enter the labour market while 70 % continue at higher educational institutions such as junior colleges, universities and private or public training institutes to prepare for the labour markets.

(Unit: %)

Year	1990	1995	2000	2001	2002	2003	2004
General high school	61.8	54.1	63.9	65.9	68.0	69.3	65.0
Vocational high school	38.2	45.9	36.1	34.1	32.0	30.7	35.0

Source: Ministry of Education & HRD, Statistical Yearbook of Education, various years.

Table 8: The Ratio between the General High School Students and Vocational High School Students in Korea

Theoretically, students can switch between vocational and general programs at the high school level. However, the number of those who actually do so is not large. This is because among the general high school students, those who want to enter the labour market upon graduation can do so without leaving the general high school (some general high schools provide vocational programs or vocational courses). Graduates from vocational high schools in Korea receive a high school diploma and most of them earn vocational qualifications before they graduate from high school. Graduates from junior colleges obtain an associate degree upon graduation.

As mentioned before, 30% of VET students enter the labour market upon graduating from vocational high schools. Among the remaining 70% who go to colleges, the proportion of those who go to universities is increasing. The ratio of 30:70 vocational track followers reflects the deep reservations against the vocational track: »public perceives vocational education as second-class education to general education« (Lee 2006: 11).

Even though IVET is not targeted to specific groups, reports find that vocational high school students have poorer socio-economic backgrounds in terms of income levels and educational attainment of their parents compared to general high school students.

Russia

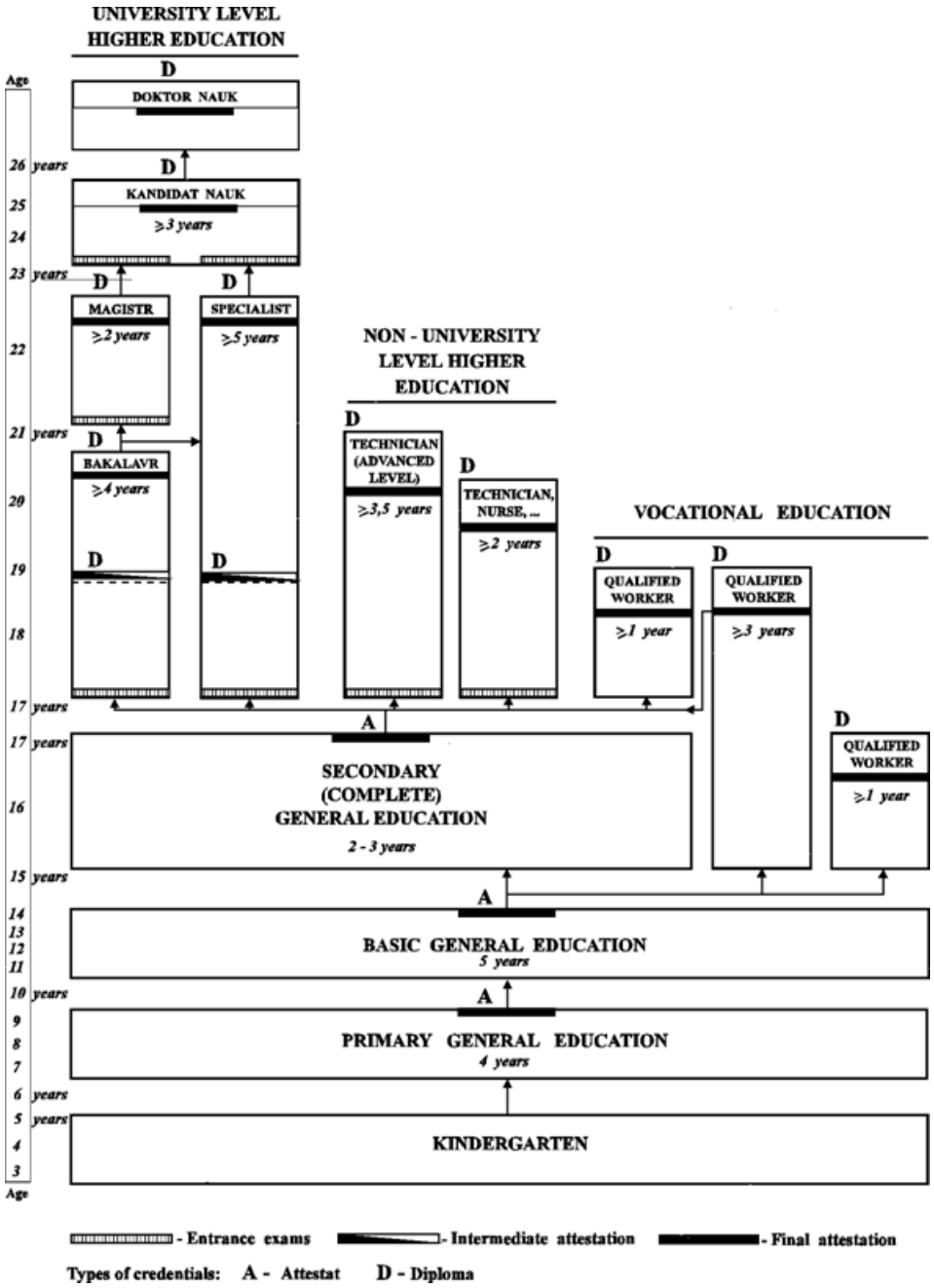
The Russian system of providing IVET in general is school-based in general – except of the on-the-job-training and informal IVET measures offered in private enterprises. School-based IVET sometimes contains practical instruction, provided there exists an infrastructure such as training workshops and laboratories. The number of NPO programmes declined from 1,257 very narrowly specialised programmes in 1994 to app. 290 broader programmes at the end of the nineties. Similar tendencies to broaden the provision are in line with creating completely new programmes in SPO (260 in 1994). There are two entry pathways for IVET: One at the end of compulsory schooling level (ninth grade, lower secondary education) and one at the level of upper secondary education at grade ten and eleven (ISCED 3). Students at both levels can choose between on-the-job-training lasting up to 6 months, and NPO and SPO. An additionally achieved diploma which testifies the upper secondary education opens the path to university. Students after graduating in NPO often pass to SPO and, then, even go on to university.

The duration of the IVET programmes depends on the entrance qualification achieved, the desired final qualification/certification, and the type of school (ordinary or »higher« type), i.e. vocational schools (profskoly) versus lycea (proflitsei); technikums (tekhnikum) vs. colleges (kolledzh) and on the programme itself. There are great differences between regions, municipalities, individual institutions and specialisations. Thus data are contradictory (MO 2001, WES 2005).

The transitions from compulsory (lower secondary) and secondary school into IVET show the following figures: In 2001 67.5 % of compulsory school leavers entered upper secondary schooling, 16.4 % NPO and 12.0 % SPO. School leavers of complete secondary school passed to higher education (49.9 %), NPO (13.6 %) and SPO (26.4%) (GS 2006, RUS-85).

Regarding the transition of VET graduates to the labour market there still is a (long lasting) tendency of trying to achieve the highest educational level possible (i.e. university graduation) and not immediately to enter the labour market. The possibility of obtaining a second or third specialisation is frequently used, often even higher level qualification. These pathways lead for example from vocational school to vocational lycea, from SSUZ (secondary specialised schools/institutes) to college. There is a movement towards integration of IVET institutions of NPO and SPO and the boundaries are merging. After leaving college there is a growing possibility to pass over to university, second year of studies. For higher education this led to the problem of combining college education with the Bologna model of bachelor and master

studies. At all levels there are great problems to guarantee/assure the comprehensiveness between programs and directions.



Source: http://www.aic.lv/ace/tools/leg_aca/guid_rus.htm

Figure 5: Education System of Russia

The types of qualifications obtained from IVET programmes typically are the following: NPO qualification traditionally covered grade 1 to 3. Because this was no longer corresponding with technical progress, NPO qualification and certificates had to be upgraded to grade 4 or 5. In the same time SPO institutions integrated education of industrial workers of these grades in order to fill this gap of qualification demand, too (see GS 2006, RUS-103, 110f, note 91). Pupils who hold certificates of lycea and SPO qualify for entering higher

education. Under special conditions college graduates can enter the second year of higher education studies of the corresponding profile.

Specific regulations (programmes for special target groups) are provided for handicapped students, young prisoners, and recently for young people under military service.

4.5 Organisation of the CVET systems

From the conceptual point of view continuing VET covers a broad range of training and learning activities as described above. Particularly learning outside structured and institutionalised VET – or learning in and at work – is a core issue of CVET. Related to this is the problem of certification.

Comparative Findings

The concepts and the actual training measures provided as CVET are extremely patchy in all monitored countries. In China and Korea, but also in Russia a good portion of CVET is taking place in companies and is not certified. In these countries there is also CVET provided by training centres (operated by employment agencies, ministries or private), which often is certified. India differs from the other countries in so far as the bigger part of continuing VET is provided at training institutes, training centres and community colleges.

Since the general problem is certification of the CVET measures, governments in almost all monitored countries make efforts to implement and improve certification procedures and standards: China is currently building up a country-wide network of certification centres, in India the Ministry of Labour and Employment established standards and certification for CVET measures and Russian government targets at quality assurance and certification by enacting a new law. For Korea no attempts of government to establish standards and certification for CVET are reported, although the bulk of CVET measures is taking place in companies and is not transferable.

China

Vocational training taken as a proxy for CVET generally is vocational training (and education) without a certificate of a school. It comprises apprenticeships, on-the-job training, re-training and short training courses that might take place before or during employment. These forms of continuing vocational education and training are partly organised in accordance with vocational standards, in any case they are highly flexible. Those training activities following vocational standards are completed with a vocational rating certificate. The MoLSS has set-up vocational standards as the basis for government-accredited exams. A country-wide network of certification centres is currently being build up. Vocational training is supplied by a huge variety of organisations such as sectoral training centres, companies, employment agencies, the unions, public and private organisations and vocational schools.

In 2003 there were operating 3307 training centres of the employment agencies and 19139 training centres with varying governing bodies. In 2003 a total of 11.66 million persons attended various measures, 5.5 million unemployed were re-trained, and more than 1 million

graduates of various schools and universities participated at vocational preparatory measures (MoLSS/Bureau of Statistics 2004).

India

The development and co-ordination of vocational training is governed by the Ministry of Labour and Employment. Under the aegis of the MLE, the Director General of Employment and Training offers country-wide training services through its Industrial Training Institutes/Centers (ITI/ITC). The training provided by these bodies is organised along a shared responsibility between States and Center: The DGE&T is developing policies, establishing standards and organising testing and certification relevant for vocational training, while the State governments are responsible for implementing the vocational training programmes and courses and the administration of the ITIs/ITCs. There are two important training schemes, a craftsmen training scheme and an apprenticeship training scheme. Both schemes are lasting between 6 months and 3 years and require 10th grade pass, some courses also 8th pass as entry requirement. They are open to school graduates in pre-employment stage, but are also open for adults (up to 40 years of age), which make it a subject of continuous vocational training. Especially for the group of employed adults attempts are made to offer short-termed courses of 2-8 weeks length with flexible timing.

Most typical organisation for providing CVET are community colleges. All over India a number of 150 of these colleges can be found. They preferably offer their courses to socially, economically and educationally 'backward groups'. The areas covered often depend on the needs of the local and regional economy. There are no high entry levels (or restrictions) for the potential learners; the philosophy is circumscribed with »merit being just the availability of opportunity«. The courses are preferably addressed to school leavers and those who have completed education decades earlier. The curricula include life skills, work skills, hands on experience and preparation for employment. The courses offered range from 'integrated farming', 'rural marketing' over 'building technology' to 'information technology' (DTP) – depending on the location being rural or urban. A recent study figured out that the courses of community colleges put a stronger emphasis on discipline, punctuality, regularity and such personal characteristics (NCERT 2001).

Beside the community colleges there are a number of specialised institutes and programmes such as the »Jana Shikshan Sansthan« (JSS) and the »Krishi Vigyan Kendras« (KVK), which both are supplying vocational courses. The KVK focuses on courses in the field of agriculture. There are around 500 KVKs, which during FY 2005 trained 680000 farmers. The 160 JSS centres' primary addressees are disadvantaged groups.

Besides, there is a Women's Vocational Training Programme in the MLL, launched in 1977, which is responsible for designing and pursuing support for women related vocational training. Meanwhile a large array courses at various organisations and institutes are offered especially for women. Most of the courses are short-termed and with flexible timing.

Discipline	Number of Programmes/Inst.	Intake Capacity (actual)
Applied Arts & Crafts	13	229
Architecture	12	141
Town Planning & Urban Design	10	163
Computer Application (MCA)	1,012	54,167
Engineering/Technology	1,463	26,203
Management	936	65,200
Pharmacy	193	1,753
PG Diploma	36	931
Total	**3,675**	**148,787**

Source : AICTE, Annual Report,2003-04

Table 9: Post-graduate level technical education in India (2004)

Korea

Participation in CVET is pretty low in Korea, particularly in school-based CVET. The dominating form of work-based continuous vocational training is provided within the companies. These programmes are short-termed. The participants of work-based programmes acquire qualifications that are acknowledged within the company but are not transferable to another company.

The governmental CVET programmes are numerous. They can be largely divided into continuous vocational education and training governed by the Ministry of Education and Human Resource Development (MEHRD) and the continuous vocational training governed by the Ministry of Labour (MOL). The MOL's programmes make up the majority of CVET in Korea. Its main programmes, which are financed by the Employment Insurance Fund are addressing and supporting three groups: the employers, the employees and the unemployed.

There are both, public and private CVET providers. Most remarkable is that most universities, polytechnic universities, polytechnical colleges, distant universities and junior colleges all run programmes for continuous education for adults and those at work. These courses are provided at the Lifelong Learning Centers established at the corresponding higher learning organisations, and authorized by the MOL.

Russia

CVET is predominantly taking place in companies or is contracted to VET institutions. Generally, the CVET measures are charged to the companies; the suppliers, i.e. VET schools, depend on these incomes. Usually these CVET measures serve the purpose of re-qualification (a new, but widespread phenomenon since the economic transformation of Russia), career advancement, and mandatory continuing qualification for special occupations. There is a smaller CVET sector that is state-provided and a private CVET market that addresses the private »user« of qualification measures (liable to pay cost). A huge variety of courses are offered for private demand, from language courses over commercial courses to cosmetics courses. Occupational re-training under the auspices of the employment agency

becomes disregarded, particularly regional skilled labour demand is hardly considered in re-training measures (iMOVE 2004).

Government attempts to assure quality of the courses and accreditation procedures for the certificates. This will be a future field of governmental activities (a law regulating the »complementary vocational education is in preparation).

As a general trend government withdraws from financing of CVET and concentrates on setting the basic conditions of a CVET market.

4.6 Institutional framework of the VET system

The major administrative and political bodies of VET and relevant stakeholders are supposed to constitute the institutional framework of national VET systems. There are mainly two dimensions of such an institutional framework, the administrative and the political. The major political actors are central governments through corresponding ministries, which are delegating certain tasks to regional political and administrative bodies. Therefore, the institutional framework sometimes is characterised by frictional tensions between central and regional policy and administrative bodies.

Comparative Findings

China and India for example have a strong central education policy, but there is an overall balance between the central government and the states and regions allowing them decision authority in various fields such as the actual implementation of VET programmes and courses in India or the de-centralised planning and coordination responsibilities of VET programmes in China. In Korea centralism seems to be stronger although Offices of Education are working on regional and local levels. In Russia after a phase of de-centralisation during the 1990s there is an administrative re-centralisation taking place, which is opposed by neo-liberal policy of de-centralising the financing of the VET systems.

Stakeholders

China

Manifold centralist bodies beginning with the Council of State and various levels of ministries and subordinate bureaucracies dominate the structures of VET in China. Major ministries are the MoE and MoLSS. Various responsibilities are allocated at the different administrative layers, e.g. for planning, coordination, control etc. Besides these bodies there are also the sectoral associations involved in planning and consultation processes.

Over all layers from central to local there are networks of research institutes on vocational education and training. There are two institutes on central government level: the central institute for vocational education (CIVTE, governed by the MoE) and the centre for certification of vocational qualifications (OSTA, governed by the MoLSS). Furthermore there are two national people's organisations for VET research, the Chinese scientific association for vocational training and the Chinese association for education and abridged training of employees.

Further important stakeholders are the employment agencies, the unions, while the companies and professional organisations play only minor roles. The reasons for the companies' reservations must be seen in the fact that especially the large enterprises are resting on their in-house VET programmes and therefore do not rely on the institutionalised involvement in VET frameworks.

India

The organisational and administrative structures of Indian VET are divided into a centralised and a state level. On the central level there is the Ministry of Labour and Employment under which the Directorate General of Employment and Training and the subordinate it is covers training countrywide. At every level and for every task (like laying down policy guidelines, provide financial support etc.) there are counterpart organisations at state level. Research-wise there is the NCERT (National Council of Educational Research and Training) acting through the Central Institute of Vocational Education as the major research and development institute in VET. The major tasks are ensuring comparability of quality standards, and providing guidelines in curriculum development, training, research and monitoring as well as evaluation.

The management structure on regional level has a focus on teachers' training and preparation of material for courses through a network of National Technical Teachers Training Institutes. Additionally, the Regional Institutes of Education function as regional vocational teacher training institutes. On district level, District Vocational Education Committees are ensuring the match between the vocational course supply and the local needs, they identify and facilitate on-the-job training and apprenticeship programmes and they supervise the institution-industry linkages and are ensuring quality control.

Korea

The Ministry of Education and the Ministry of Labour are the two major central bodies of the Korean institutional framework of VET. They are allocating funds at national and regional institutes such as the LLL programmes of higher educational institutes (MoE) and at public vocational training institutes (through the Vocational Competency Development Fund that collects resources from private companies). Below the level of central government, there are Offices of Education at the regional (in each city and each province) and at the local level, which are carrying out VET programmes at their respective levels.

Overall, the involvement of social partners is weak, though existent. Labour and management are excluded from participation in the National Human Resources Committee, the highest national body for human resources development, and other VET-related bodies. They take part in 5 to 6 governmental committees related to VET, but do not exercise any practical influence on the committees due to their extremely low share in the total number of commissioners. The primary reason lies in the low interest of the social partners in VET. However, government has recently launched an initiative to consolidate the co-operation among the state, labour and employers. But there is little agreement on VET among social partners at the industrial level, and only very weak cooperation between labour and management at enterprise levels.

Russia

The Russian situation is characterised through a hierarchy of levels of government bodies. On top, the Federal Ministry of Education and Science is responsible for the fundamental strategy, legislation and framework regulations of educational policy. Since 2006 a de-centralisation took place: The Federal Ministry grants earmarked financing to the regions, which now have the full responsibility over the finances (including the federal grants). While SPO was similar to higher education, under the responsibility of a State Committee for Higher Education (Ministry of Education and different ministries of Branches of Economy), the NPO was under federal responsibility with the exemption of 19 regions, which took over financing responsibility. Since 2006 both, SPO and NPO became decentralised: while most of the NPO institutions are now under the responsibility of the regions, the SPO institutions have been taken over by the federal ministry from the branch ministries, which will be given regional competence in the future.

Involvement of social partners in VET matters is weak, though proclaimed since the mid-1990s. Similarly, the stakeholder involvement is very weak, because there is no tradition of political participation and the revival of vertical, hierarchical structures of the political system gives little space for stakeholder involvement.

By law there is a great deal of de-centralisation and autonomy in Russia's education infrastructure. But during the last years the administrative control was reinforced, the number of regulations was growing and the poor financing set very narrow boundaries for autonomy. Thus education institutions depend strongly on the administrative structures.

5. Image and attractiveness

The image and attractiveness of VET has been an issue for several decades in most of the European countries. Policy makers as well as practitioners have been and are worrying about the fact that many young people (and their parents) opt for general academic education instead of vocational education and training. VET often is seen as a second best option, an option for the lower achievers. What exactly is 'attractiveness' of VET? A simple 'definition' of the attractiveness of VET would be the extent to which (young) people – given the choice – opt for VET instead for general education. In operational terms this would mean the relative proportion of each age cohort that enrols in VET (relative as percentage of the whole age cohort). However, the concept of 'attractiveness' has more dimensions: i) the relative standing in the labour market (both employers' perceptions and the relative labour market position of VET graduates in terms of employment chances and earnings) and ii) the responsiveness or better the 'flexibility' of VET. The latter concept can be further delineated in:

Organisational flexibility: the extent to which VET participants can switch from VET pathways provided by one particular institution to VET pathways provided by other institutions (inter-organisational flexibility) or the extent to which VET participants can switch between pathways within one institution and/or can follow more individual pathways in terms of enrolment, outflow and curricular options (intra-organisational flexibility). In the latter case particular organisational pre-conditions are such as timetables, resources, locations, etc. play a role.

Pedagogical flexibility: this concerns the ways of teaching and learning applied and the instructional and guidance activities of teachers and trainers as well as the learning activities of the learners themselves.

Flexibility of pathways, which refers to like open access, less emphasis on distinctions between groups of participants in different pathways, smooth transfer between different pathways and a greater diversity in the further educational routes and labour market possibilities upon completion of a particular pathway.

Curricular flexibility, which involves flexibility with reference to a number of dimensions; i) flexibility over time, e.g. updating the curriculum due to changes in competencies demanded by occupational practice; ii) across space, e.g. adjustments to regional conditions and iii) across individuals, e.g. meeting the particular needs of individual students (comparable to input flexibility).

These different 'dimensions' of flexibility are not completely mutual exclusive. At the same time, flexibility over time and across space, are also related to the third specific theme of this study, namely 'identification and anticipation of skill needs'. Nevertheless, it is clear that 'flexibility' can contribute to the 'attractiveness' of VET both form the perspective of potential participants and from the perspective of the 'end users' of VET, which are in the first place the (future) employers of VET participants.

Furthermore, the attractiveness of VET can be raised through the recognition of non-formal or informal learning. Since long schools are not seen as the exclusive venues of learning, but rather companies (particularly work places) are perceived as places of knowledge creation and

knowledge emergence (Nonaka & Nishiguchi 2001), as the »wellsprings of knowledge« (Leonard 1998), and thus the places of manifold learning processes among the involved workers. These other forms of learning need to be recognized in order to increase the attractiveness of qualified work in production sphere.

Comparative Findings

The image and attractiveness of IVET is problematic in each of the countries. Without exception, IVET has a low status and is perceived as a track for the 'under achievers'. Moreover, in countries like China, where IVET at tertiary level has been developed over the last decade, and Russia, there is a tendency of substitution in the labour market, with employers asking more and more for VET graduates from the higher level. In China, IVET, both at upper secondary and tertiary level is a growing sector. Particularly the establishment of the vocational universities since the mid-1990s has contributed to an improved image of the VET track, mainly because they grant bachelors degrees. Even though this improved the attractiveness of VET for young Chinese, it simultaneously influenced the learning contents to the disadvantage of vocational and practical elements and in favour of general education. All measures to improve the attractiveness of VET were only weak means to challenge the strong Confucian heritage of prioritising general education. In some cases, like the improved opportunities to switch between the general and the vocational path, there is a clear preference of the young students to transfer from the vocational to the general education branch and do further courses in general education. These measures of improving the »lateral mobility« – a materialization of the concept of *organizational flexibility* – did not significantly boost the image of VET, but rather contributes to the escape from vocational education and training.

Similarly, in Korea there is a strong bias among the youth (and their parents) towards general education, and a complementary bad reputation of vocational education and training. The opportunity of switching between the different educational paths is used as a one-way path from vocational to general education streams. Similarly to China also in Korea efforts are made to establish four-year vocational colleges that offer bachelors degree, which might contribute to an improved attractiveness of VET education.

India is facing a similar basic situation as China and Korea regarding the image of vocational education and training. Correspondingly there are some, though limited, possibilities for VET graduates to continue studies in higher education (tertiary level), which opens up a path towards higher academic education. And also on the secondary school level India has quite a tradition in attempting to 'vocationalise' curricula and in attempting to increase the participation rates in VET, but these have not been really successful until now. Nevertheless, these remain key issues in India's VET policy, together with the improvement of the effectiveness, efficiency and relevance of VET through, among others, more emphasis on emerging sectors (also improving the labour market position of graduates) and better VET-industry linkages.

Russia, by and large, shares the basic situation of the three other countries observed regarding the contempt for vocational education and training. VET on lower secondary level (NPO) is decreasing (regarding enrolment figures) and has a very unfavourable reputation of being the

rallying point of the socially underprivileged. Upper secondary VET (SPO) has a slightly better image and enjoys some increase in enrolments during the last years. Despite the substitution through higher education graduates there is an increasing demand for skilled workers that cannot be fulfilled. Therefore measures to increase attractiveness need to be implemented, such as the step to make IVET more attractive by facilitating 'a high flexibility of pathways' in IVET, e.g. through horizontal and vertical integration of IVET institutions (in practice many young people continue after having obtained a lower level vocational qualification, and increasingly they go on to obtain a vocational qualification in higher education).

For all analysed countries, except for India where currently a system of recognising skills is being introduced by half of the states, we have to consider few attempts to recognize (and accredit) prior learning through special assessment and certification methods. This is mainly, because practical work experiences and informal learning are not considered to be of equal rank to theoretical (and general) knowledge. But since all observed national VET systems are mainly school-based there would be a need to recognize (and certify) the practical work experiences, which happens only in special cases.

Nevertheless, these countries are economically successful, which raises the question of how this success is related to the underlying VET systems and which recommendations could be given to improve the nexus between qualification supply and the demand. The obvious solution to the coordination of supply and demand lies in involvement of the »consumers« of qualification, i.e. the companies, into the curriculum development, the definition of skill requirements for special occupations, and in ensuring the adequate implementation of practice into the courses – thus supporting curricular flexibility. The examples given do indicate that there is an increased awareness to bring the schools and companies together. In the case of India the issue of company involvement has its own history, since all committees and evaluation reports since the 1990s do formulate this as an essential requirement for achieving a match between demand and supply, but the fact that it is repeatedly demanded shows that it is not so easy to solve the problem. The companies are eager to cooperate with the schools and to gain influence on the content and the skill composition of graduates, because this would allow them to coordinate their o-j-t measures with the schools, which would not only increase planning reliability and reduce frictions but also would save money (a point addressed in the section on finances).

China

As characteristic indicators for attractiveness we take primarily the share of vocational enrolments against the enrolments in general education. We can refer to Table 7 for a general overview to the attractiveness: The crucial finding is that in all observed countries the general education paths do enrol a higher share of students, which can serve as a first proxy to the higher attractiveness of general education. The argument gets additional amplification when considering the enrolment figures over time. In the case of China we find that the number of enrolments both in secondary and in tertiary vocational education has been increasing during the last 5 years.

Year	Students at vocational Schools (in 1000)	Students at vocational Universities (in 1000)
2004	14,092	5,957
2003	12,237	4,794
2002	11,209	3,763
2001	10,591	2,947
2000	11,328	2,161

Source: Monitoring Report China,2007

Table 10: Development of Students in vocational Schools and Universities (2000-2004)

There is a slight increase in the VET enrolments on secondary level, but more remarkable is the increase of enrolments at tertiary level (vocational) which has almost tripled during 5 years (see Table 10). This sums up to almost 50% of all students at universities and colleges. The vocational university is both, the highest level of vocational education within the Chinese education system and it is part of the scientific university education. Graduates from skilled workers schools, senior vocational schools and specialised secondary schools have access to the vocational university. These career paths are widely used since they offer both better qualification and higher prestige (Lauterbach 2003). The statistics on IVET enrolments do not identify figures distinguishing with regard to gender. It is generally assumed that females have better scores in the entry exams, and thus they should have good opportunities to receive a good vocational education and training, but it is doubted that in the case of a girl the families are willing to pay the tuition fees.

As mentioned earlier, in Chinese cultural and social tradition general education is rated higher than vocational education and training, which corresponds with the higher prestige of a civil servant and academic as compared to a craftsmen, workers or peasants – thus practical/manually working people. Parents still nowadays do pay attention that their children follow a path of higher general education – if possible. These characteristics are in accordance with the Confucian wisdom that »those devoting their energy to the intellect shall rule, while who is working with physical strength shall be ruled« (lao xin zhe zhi ren, lao li zhe zhi yu ren). Even half a century of Maoism plus a cultural revolution did not change much to this attitude.

Therefore still today learners show greatest interest in general education. Vocational education and training is stigmatised as a degrading institution, which acts as a »rallying point« for those who could not advance to higher education. And even within the system of vocational education and training, teaching theoretical knowledge is valued higher than imparting practical skills. Thus a great challenge for government and educational policy lies in the maintaining new values in society, which are supporting not only university educated academics, but rather experts and specialists that are used and able to working on their own, be creative and sustain innovation.

VET graduates' position on the labour market is improving gradually, but still the preference of those applicants with the highest formal education is widespread, because these people are assumed to have the best developmental potential. Thus graduates from vocational universities and bachelors of universities are preferred, but the wage differential between

these groups and the graduates from the secondary vocational education and training are not so pronounced.

The possibilities for VET graduates to continue studies in higher education do exist, but in practice this is not a significant path, because those who could not pass the entry exams for higher education were forced to take the vocational route, and it is unlikely to continue with (general) university studies after a successful vocational education and training. The track to vocational university studies is chosen more often, because it is the highest possible degree of the vocational pathway and it has improved its reputation during the last years.

The dominant path to continuing studies are the opportunities provided by the Chinese system of adult education, which offers courses with and without higher education exams. The major institutions providing adult courses in the tertiary sector are distance learning institutions, evening courses at regular universities etc. Statistics counted 505 universities for adult education (in 2004) which awarded 540 356 4-year-studies exams and 1.355796 3-year-studies exams. Due to the rapid development of general university education it can be expected that adult education on tertiary level will decrease in significance.

The option to switch between VET and general education is not chosen very often. The possibilities to re-enter VET learning arrangements with the purpose to broaden or up-date qualifications are widespread. The formal requirements to get into courses of vocational or technical schools usually comprise graduation from lower secondary education and an entry exam, which is not very demanding. Statistical figures on re-entrants are difficult to obtain. Similarly, there is a complete lack of data on the options to obtain qualifications/certificates through the assessment (validation) of prior learning (non-formal and informal), but the recognition of prior learning (including practical work experiences) is a viable option. But there are no special procedures and measures implemented: The assessment of prior learning is carried out through allowing everybody to attend any entry exam of the vocational track without having attended the courses. Obviously, this is just the well-known option of extern exams, which of course do ipso facto accredit other forms of learning, but there are no special (or new) forms of assessing the non-formal and informal learning implemented.

There are no serious specific measures implemented that would sustain an improvement of the image and attractiveness of VET in China. Supporting the vocational university and putting it in the same category as general universities is an important means to improve the image, but this affects only the higher end of the VET track. At the lower and medium levels of VET education the image is still negative, and it is extremely difficult to fight against the traditional resentments among the general public, but also important stakeholders and actors like personal managers of companies, both private and state owned, still orient their recruitment and career advancement policy at old role models, which do favour graduates from universities (bachelor or master degrees) for leading positions, even at lower levels.

There is a small number of specific measures implemented recently by Chinese government, which do address university graduates and young migrants from rural areas. The former are supported (and encouraged) to self-employ or to set-up their own businesses by a programme labelled »vocational education for university graduates« (since 2003). This programme aims at conveying the necessary knowledge for setting-up businesses, but also generally it targets at improving the university graduates' practical skills necessary for

employment, but not acquired during theory-oriented studies. The metropolitan government of Shanghai, for example, runs a programme »practical traineeship for employment of university graduates«. Furthermore, in China's Western region a programme to employ fresh university graduates who cannot immediately find adequate employment was established.

A programme for supporting young migrants from rural areas was launched in 2004 by various ministries, the »Poverty Reduction Bureau of the Chinese Council of State« and the »Chinese Association for the Promotion of Democracy«. The goal of this joint programme is to improve the qualification of the young people migrating from rural into the urban areas through establishing training centres. Until 2004 there were 420.000 young migrants receiving training.

For the Chinese situation we can conclude, first, that as a socio-cultural legacy VET is perceived as a second-class education. This strongly influences the choosing patterns of educational paths in favour of general education. Even though the employment opportunities after graduating from the vocational education are good – especially in the booming industrialised coastal zones, this does not lead to a booming demand for VET. One reason, of course, might be the unfavourable career opportunities for persons holding VET qualifications: Leading positions in the companies are in most cases still occupied by graduates from general education. A major step in improving the image and attractiveness of VET was the establishment of a system of vocational universities since the late 1990s. These studies leading to a bachelors degree are attractive for a large number of people, many of which were not able to get into the general education system during their education. Though only reachable for a smaller number of students, these vocational universities clearly are attracting many people, and of course, these specialised universities did relieve the general universities of a large demand from students' side.

India

The technical and vocational education and training in India in general is severely distinguished from the general education and does not enjoy a good reputation – except for higher education in engineering and technology, but these are recruiting from the academic stream. Generally speaking, vocational education and training was considered an education path that was aiming at low achievers, school leavers/dropouts, those with limited intellectual aptitude or for the lower socio-economic strata. The TVET aimed at providing occupation specific skills and thus preparing the workforce of the initial or middle order for employment.

The expressed strong resentments again vocational education and training first of all lead to a comparatively small share of people »choosing« the vocational track (obviously this seems to be no deliberate but rather a residual choice). Therefore, there are massive interventions and measures needed to fight against the negative image of VET. Among the Indian government's efforts to improve the attractiveness of VET

The initial steps in establishing a vocational stream in Indian education were based on the Kothari Commission's recommendations that for a majority of occupations no university degree was needed. Therefore, a vocational stream after a 10-year general education was adopted in the National Policy of Education (1968) and the following Five Year Plans. The outcomes and the performance of the vocational education paths have been repeatedly

evaluated by various commissions and committees. For example, the Open Research Group found out that even in the mid-1990s the states are giving low priority to vocational education and training. This finding is supported by the observations of the Parliamentary Standing Committee's report on Vocational Education (1998). The general finding concludes that the vocational education and training scheme has not been implemented as effectively as it should have been done. In detail the committee suggests as improvement measures that the state should provide separate funds for vocational education and training, that district vocational surveys should be made compulsory including the involvement of the communities, special steps to foster girls' enrolment, and an active involvement of the industrial sector in curriculum renewal. Also in 1998 the NCERT's (National Council of Educational Research and Training) evaluation stated similarly, that active partnerships with industry are needed. One of the more far-reaching recommendations for the National Curriculum Framework of the NCERT calls for a stronger emphasis on work experience, pre-vocational and generic vocational competencies at various levels of school education. In 2000 the Working Group on Vocational Education proposed that the vocational courses in schools should be competence-based and in modular form with a system of credit transfer and provisions for multi-point entries and exits. Again, the call for strengthening the vocational stream by involving industry in designing the courses, in the development of the curriculum, the training of faculty and the certification of courses is raised. Many of these recommendations have been picked up into the tenth Five Year Plan (2002–2007) and are now on the present-day political agenda. In order to deal with the problems of unemployment and attractiveness there are measures under way that strengthen and support the »vocational« orientation of the curriculum by overcoming the disjunction between the (vocational) education system and the workplace. A special emphasis is laid on the vocational education and training and skill development at all levels of education – especially at secondary school stage.

There are some limited possibilities for VET graduates to continue studies in higher education (tertiary level), e.g. some states offer students from vocational education admission in degree level courses (like Commerce, Agriculture, Humanities etc.), which opens up a path towards higher academic education. The already mentioned report of the Operation Research Group (1996) stated that around 38% of the vocational students strive for higher education.

The possibilities to obtain recognition or certification by assessing of prior learning or working experiences are now in a stage of introduction. There is a new scheme of »testing and certification of skills« launched under the aegis of the Ministry of Labour and Employment's. This scheme is testing and certifying the informally acquired skills. Until today competence standards for 46 skill areas have been developed. About 17 of the 28 states have consented to implement this scheme.

Korea

If once again taking the statistics on the share of vocational enrolments against the enrolments in general education we find a 35% share for the vocational tracks (in 2004). This ratio gives some hints on the general perception of the public and on the structural peculiarities of the Korean VET system. A closer look at other statistics helps to get a more

detailed picture: The total number of high school graduates shows a decrease from 274,150 in 1990 down to 182,835 in 2004 which is equal to a 30% reduction (see Table 11).

The below table indicates that in the early 1990s a sig

nificantly larger share of vocational school students chose to leave the education system and take up an employment. Those continuing higher education were only a minority (of 8.3%). The number of students continuing higher education has increased steadily and by 2002 it exceeded the number of those that were entering employment. In 2004, the advancement rate to higher educational institutions reached 62.3% while the employment rate decreased to 32.9%.

(Units: person, %)

Year	Total number of graduates	Advancement		Employment	
		Number	Rate	Number	Rate
1990	274,150	22,710	8.3	210,113	76.6
1995	259,133	49,699	19.2	190,148	73.4
2000	291,047	122,170	41.9	149,543	51.4
2001	270,393	121,411	44.9	130,968	48.4
2002	231,127	115,103	49.8	104,138	45.1
2003	189,510	109,234	57.6	72,212	38.1
2004	182,835	113,944	62.3	60,062	32.9

Source: Ministry of Education & HRD, Statistical Yearbook of Education, various years.

Table 11: Change in Employment Rate and Advancement Rate to Higher Education among Vocational High School Graduates

Korean government is aware of these developments and responds to them by trying to extend and improve the role of vocational high schools by better preparing them to the changing needs arising from technological advancement. In this connection the National Commission for the Education reform and the Ministry of Education and Human Resources has launched a »Reform Plan for the Vocational Education System« in 2004. This plan proposes e.g. to increase the number of special high schools significantly and suggests a catalogue of measures like strengthening basic vocational education and training within general vocational high schools (overall change in curriculum, smaller number of students per class), improving the quality of practical »field training«, activate school-based enterprises and support business start-up programmes for vocational high school students (Lee 2006: 4-5).

The reform plan does not put sufficient emphasis on reforming the junior colleges, however a set of measures is intended to support junior colleges and universities, e.g. by strengthening their roles as lifelong learning centres for developing vocational qualifications of adults, develop majors jointly with industry, promote school-based enterprises and linking local industries with the colleges by establishing »Industrial Technology Education Zones« (Lee 2006: 8). The latter issues pinpoint the current major deficiencies of Korean VET: (1) Vocational curricula are theory-biased and fail to meet industry's demand for skilled workforce (vocational high schools' graduates suffer severely from workplace skills). (2)

There is a lack of school-industry partnerships. (3) There are only few and weak linkages between curriculum and the technical qualification system. (4) There is a lack of a quality assurance system. These structural deficiencies are embedded in the generally unfavourable image of vocational education and training.

With regard to the labour market position there is not much of a difference between the graduates of vocational high schools and general high schools in terms of unemployment and payment. However, the compensation graduates from universities receive are much higher than those of junior college graduates. This is mostly because university graduates have spent and invested more time in educations than junior college graduates.

Switching between VET and general education is possible in both directions, however in reality there are not many who actually switch and of those who shift from one educational track to the other, most are changing from the vocational track to the general education track. The possibilities of re-entering VET learning arrangements do exist, e.g. in the case of junior colleges whose programs are mostly 2 to 3 year long, they offer 'further courses' to the graduates. Graduates from such junior colleges can re-enter junior colleges to take 'further courses'. Those who finish further courses can obtain a bachelor degree. However, similar to the number of those changing the educational track, there are not many who actually re-enter further courses.

The possibilities to obtain qualifications or certificates through the assessment of prior learning efforts or acquired work experiences are limited. First, similar to the Chinese case, but obviously more difficult, there are kind of extern exams for those who are not enrolled in courses. They can go through a very complicated process of tests to obtain recognition of prior learning. But this is a very difficult and a complicated process that people hardly go through. So we can summarize that the recognition of prior learning or work experiences is not well established in Korea.

Since the number of those leaving the Korean education system without any recognized qualification is very low, therefore there are no special measures taken to support these young people. There are special measures implemented which address young job-less, holding at least a high-school diploma, providing them training. At the tertiary level there have been efforts made to implement a four-year vocational college that can offer bachelor degrees to the graduates. Eventually, for the graduates of vocational schools after entering the labour markets there are arrangements to learn at school while maintaining their employment – thus adult education schemes.

Even though there is a lot of on-the-job training taking place in Korean companies, the recognition and acceptance of the need for training the employees is relatively new. Traditionally, workers and their representatives were focussing on such issues as payment and working conditions, there is now a change taking place which focuses on the training of workers. Also on the employers' side there is an increased awareness for the worker training and skill enhancement issues. These changed perspectives meet with the government's programme of refunding at least partially the companies' expenses for in-house training provided to the employees.

Russia

As the figures and data in section 3.4 indicate, Russia shows a similar ratio of enrolments in general versus vocational education as the other countries observed (refer to Table 7). The current trends show that NPO is declining while the SPO is gradually growing, thus – as a first proxy – the branch of secondary vocational education and training can be assumed to be more attractive. This interpretation is supported by the generally poor recognition of VET, especially at the level of NPO, by the population. There is an overall judgement within the Russian public, that NPO has a very low reputation. Russian and international experts date it back to the times of forced recruitment of workers by the system of »state labour force reserves« from 1940. Data from 2001 (Smirnov & Tkachenko 2002), based on a representative data collection, paint a dark picture of the social problems of NPO: Pupils often live in low income families (80 % below the subsistence level) and about 70 % have a worker or peasant/collective farmer family background. Thus, young people and employers have a preference for higher education, a tendency occasionally labelled as »degrading of content and social status of education degrees«.

Employers' general interest to invest in formal IVET is considerable, but trust in and reputation of state-run IVET is low, particularly because the specialisations of IVET programmes are outdated and the standards of »output« are low. Therefore, employers prefer schooling in their own plant (informal and sometimes even formal, i.e. licensed).

The labour market position of VET graduates compares unfavourable to the labour market performance of the higher (and general) education graduates. The process of substitution is persisting since the Soviet era. But there are some reversal tendencies: A growing demand for skilled workers, which cannot be covered by the supply, because of demographic developments and, last not least, because of the bad image and attractiveness preventing young people to enrol in VET education.

The opportunities to continue vocational education and training are often offered as evening courses during employment or as distance education.

The recognition of prior learning and work practice is – though officially proclaimed – only a peripheral phenomenon, because the certificates seem to increasingly loose significance for the employers: Testing young applicants is a preferred means to assess their qualification rather than relying on official certificates of dubious value.

Among the general and specific measures of the Russian government to increase the image and attractiveness of VET are the following (see also ETF 2005): Improving access and quality as well as adjusting the system of IVET and CVET for continuing (permanent) VET; to keep up with what is deemed as international standards of the contents; raising the attractiveness of VET for private investment, and encouraging the involvement of stakeholders (i.e. social partners). The action field of enforcing the social inclusive effects of VET is widely neglected, only peripheral emphasis is put on fostering the existence of NPO vocational schools as a means for social inclusion. Contrarily, more political emphasis is laid on breeding up talents and new elites, and also Putin's declaration to make general education compulsory up to the 11th grade instead of the 9th grade (as in the past) does not contribute to improving the image and attractiveness of VET.

6. Financing of VET

Conceptual Clarification

Knowledge on the financing of VET is of crucial importance – not only to assess the overall performance of the VET systems on the basis of input/output measures, but also in a more qualitative sense that if emerging innovative funding approaches can be identified and assessed regarding their sustainability.

Adequate data and indicators for monitoring VET (within Europe) are lacking or not compatible (Behringer 2004). This turns out to be true also for the set of countries observed by this study. Especially, the need for disaggregating data on education and training according to general and vocational paths is an important precondition, which is still not met by many countries.

This concerns in particular:

a) the extent to which available data allow for the required breakdown in cost categories;
b) the comparability of data between countries (in terms of reference years and classification of cost categories);
c) the extent to which 'fund flow' can be made transparent or even the extent to which information is available about different 'fund flows' (given that substantial amounts are coming from private sources);
d) the extent to which it is possible to give a realistic picture of total funding of VET (again given the substantial amounts coming from private sources).

In this section possible new methods and indicators to measure and evaluate the efficiency and effectiveness of VET financing will be followed.

In addition, the distribution of VET expenditures among public and private (enterprises, households, individuals) is subject of considerations. However, when applying a wide concept of VET, it is difficult to assess all different costs, expenditures and benefits, because this includes learning that takes place under conditions that are not straightforward to control. Typical examples would be learning while working, HRD measures under the auspices of the companies involved or opportunity costs of training and also of not-training. In addition, in order to make a precise assessment on the efficiency of training an accurate measure is needed on the quality of training (Grollmann 2007)

The quality of available statistical data often is inconsistent because of a lack of distinction between IVET and CVET; similarly with the absence of a clear-cut differentiation between different cost types (direct, indirect, levy systems). Since VET provides benefits to individuals and companies as well as to economies and societies it is extremely difficult to assess the net costs of VET, especially when it takes place in the private domain of companies and individuals, where accurate data are difficult to obtain, as it is the case in most countries for continuing training activities. Therefore, theoretical explanations on investment in in-company and apprenticeship training are multifold.

Comparative Findings

In each of the countries the public funding of IVET has increased substantially over the last decade. Nevertheless, public funding is 'problematic'. In India one speaks of 'underinvestment', while in China the contribution from the public (state) budget is very limited. VET institutions need to find funding resources here through fees, contributions from sector organisations or income generating activities (e.g. sales of products from school workshops). In Russia there has been a situation of under-financing of VET until the late 1990s, which also led to the development of the second or 'wild' IVET market (dikii rynok), which as a result did not establish a stable private sector of the education system (except in higher education), but led to 'privatization within the state sector'. This consequently created double structures within schools and VET institutions regarding their budgets, their staff, and also parallel groups of paying and non-paying (state funded, i.e. by state 'zakas') learners. Even though funding has been increased substantially since the late 1990s (e.g. in vocational school state funding covered in 2000 only 30% of the costs per participant per year, this had increased to 60% in 2003), nevertheless, the limits of public funding remain a problem for Russia too. In this context it is considered to encourage income-generating activities of VET institutions, which is also an issue in India.

Funding is a theme that needs particular attention in the phase of in-depth analysis per country. Surprisingly, although financing is »only« a matter of »hard facts«, the statistical data in the four countries are incomplete, fragmentary, incompatible and in some cases misleading.

6.1 Regulatory and administrative framework for financing of VET and funding mechanisms

National laws, which generally define the responsible bodies, set the major beneficiaries etc. the frame for VET financing. The actual financing and budgetary issues are administered through various schemes and programmes.

China

In the case of China the Vocational Education Law enacted in 1996 gives the general regulatory framework. The sources for investments in vocational education and training are local governments, the budgets for the running costs are provided by the provincial administrations. Various government and administration levels are assigning earmarked financial resources and guarantee the gradual increase of the resources, while the provincial governments do assign additional funds for the educational budget and do secure a percentage for vocational education and training.

Further revenues do come from different sectors in form of donations and investments. Another financing source is the tuition fees of students. As indicated in Table 12 government covers between 50 and 60% of the total cost, while the contribution of tuition fees to the total cost lies at about 30%. There are some peculiarities according to school type of which the most striking one is that government's cost coverage of the universities for adults is below average (app. 30%), and even more remarkable, the cumulated tuition fees exceed the

governments expenses, thus for the adult universities private expenditures are higher than state expenditures.

Types of School	Total	Govern-ment	Private In-vestment	Donations	Tuition Fees	Others
Universities (incl. Vocational Universities)	1,754.35	840.58	60.30	25.64	505.73	322.10
Universities for Adults	119.33	36.30	17.33	0.10	43.01	22.59
Specialised Secondary School	259.21	139.52	3.08	0.64	85.75	30.21
Vocational Secondary School	184.91	99.72	1.26	0.39	64.88	18.67
Specialised Secondary School for Adults	41.38	22.89	1.83	0.09	8.65	7.92
Senior Vocational School	42.54	22.84		0.10	9.65	9.95
Junior Vocational School	172.79	99.68	9.92	1.35	43.95	17.89

Source: Country Report China, 2007

Table 12: Financing of the VET in China 2003 (in 100 Million RMB Yuan)

What the statistics do not reveal is, that regarding the flow of governmental funding there are distinct regional differences to the advantage of the rich regions (costal area around Shanghai, Beijing, Zhejiang and Guangdong) while many schools (in poorer regions) are heavily depending on the tuition fees that are collected from the students. These vocational schools need to raise additional money from industrial associations, companies – or running companies owned by the schools.

Korea

Korean VET system is largely private funded. Both sub-systems, vocational education and vocational training receive more than half of their budgets from private sources. The major funding sources of *vocational education* institutions such as vocational High Schools, Junior Colleges and Polytechnical Universities are tuition fees of the students. Central government, local education authorities and school foundations (for private schools) do contribute less than half to the total budget of vocational education. Table 13 indicates that the ratio between private funding amounts up to 60% if the total of all VET school types is calculated. The worst ratio is represented by junior colleges which have a share of 78% funding by students. The highest share of government funding is at vocational high school with around 65%.

The distribution of central government funding goes to local government authorities in the form of general grants or project grants. Local governments have various distribution mechanisms at hand to transfer funds to the vocational high schools (e.g. unit cost per school per class and per student, or for general operation cost as unit cost per school etc.). Junior colleges and polytechnical universities are provided direct subsidies of MOE for specific

government projects (distribution based on evaluation). The major problem of VE financing is the structural bias towards private funding and a lack of autonomy in vocational high schools.

Classification	Total	Students	Government	School foundation	Others
Total	5,110,582	3,023,290 (59.2)	1,506,945 (29.5)	60,904 (1.2)	523,443 (10.2)
Vocational H.S.	1,950,667	631,705 (32.4)	1,269,895 (65.1)	16,771 (0.9)	32,296 (1.7)
Junior College	2,609,550	2,053,515 (78.7)	65,209 (2.5)	44,133 (1.7)	446,693 (17.1)
Polytechnic U.	550,365	334,070 (60.7)	161,366 (29.3)	10,475 (1.9)	44,454 (8.1)

Source: Paik 2004

Table 13: Budget of VE institutes by funding sources

Until 1998 financing of *vocational training* used to be build upon a training levy system. With the enactment of the 'Basic Law for Vocational Training' in 1976 a compulsory training system was established which forced private firms (over 300 employees) to provide in-plant training or pay a levy to the 'Vocational Training Promotion Fund'. The system did not work properly, because the levy was lower than the actual training cost; this is why the number of trainees declined sharply in the end-1970s.

With the introduction of the 'Employment Insurance System' in 1995 vocational training financing is run under a 'Vocational Competence Development Scheme' which is basically incentive-driven to encourage employers and employees to participate in lifelong vocational training. Funding of the 'Vocational Competence Development Scheme' is provided through central and local governments and as private sources the Employment Insurance Fund is the major contributor. A major impact of the new regulation of vocational training was the increase of upgrade training after 1998 from 679,000 up to 1.626 million trainees in 2001 (Paik 2004).

Among the challenges and problems of the current system there are inefficient distribution mechanisms, the need to diversify the funding sources, and often a lack of relevance of vocational training to skill demands.

India

The scheme on Vocationalisation of Secondary Education, launched in February 1988, is still operational. Since the inception of the scheme about Rs 7650 million have been distributed as financial aid. The expenditures under the scheme are shared among the central government and the States, but there is a set of expenditures covered by the central government alone, e.g. equipment of schools, teacher training, apprenticeship training. The shared expenditures

(e.g. vocational guidance, field visits by students, examination and certification) usually are divided fifty-fifty.

Russia

The most remarkable turning point in Russian education policy was the enactment of the Russian Law of Education in 1992. Influenced by neo-liberal models of education policy, the focus is on increased efficiency of education investments, particularly for the state subsidies provided at various levels. Unable to put the law into concrete action, Russian education policy during the last 15 years oscillates between reducing and strengthening its influence on the education sector. After almost a decade of »stop and go« it was with Putin's initiative to implement the fundamental ideas of the Russian Law of Education by »modernization« of the education. During this »modernization« process government made attempts to privatize and commercialise education by reducing state responsibility to financing and shift it to private economy and the public. This »modernization« became re-adjusted in 2005/2006 through the »Priority National Project Education«/PNPO, which established a well-funded and governed project to support the education sector.

According to Russian experts the whole education sector until 1999/2000 was severely underfinanced by the state: The expenditures (official and unofficial) of families per student beginning at the age of 16 (start of university entrants) exceeded the budget expenses. This is mainly covering general education, also in the vocational schools (of middle and upper secondary levels) tuition fees are coming up. In 2002/03 the share of students paying the full tuition fees was 20.6 % in vocational schools (lycea and colleges, because vocational schools at lower secondary level do not ask for fees at all), 37.0 % in technical colleges and 50.9 % in higher education institutions (in 2000/2001: 18.0 to 32.6 to 40.9 %).

6.2 Innovative funding schemes and efficiency/effectiveness

An innovative approach to financing vocational education and training that can be found across the observed countries is the introduction of voucher systems. Levy systems also exist in all countries, partly for VET, partly for CVET. In some cases abolishing a not functioning levy system (as was the case in Russia in 1999) might be highly innovative.

For China and Korea there are no innovative financing examples provided. This holds also true for India, but at least one evaluation study recommended that the Industrial Training Institutes (ITI) under the auspices of the DGE&T should be encouraged to generate revenues by offering training and other services to the market. Additionally, it was recommended that funding should be allocated per student, in order to match the real costs of courses. However, these were recommendations and it yet remains open whether this will be implemented into a new innovative practice.

In Russia there are plenty of experimental, innovative funding schemes (at least tentatively) implemented, e.g. in higher education there exist voucher (GIFO) or credit systems, per capita financing and incentive grants. Most of these new schemes are controversial (e.g. the university GIFO), with the exception of incentive payments by the government's PNPO. Per capita financing is called into doubt, because the state funds will go to the schools that offer

the most actual (often »fashionable«) vocational specialisation, which often do not match with the actual labour market demands (stated as »money follows the student«).

Besides these governmental funding schemes, there exist different ways of »shadow payments« and »other flows of money«, both from companies and from private households. As another indication for irregularities might serve the case of the 1999 abolished levy system. It was abolished, because the levies from private business were not collected and delivered to the government.

There are no attempts to measure the effectiveness and efficiency of the national VET systems reported by the country experts of China and Korea. India seems to have a long tradition of evaluating its vocational education and training programmes. The recommendations arising from these evaluations did, besides addressing general subjects of education, address funding issues. However, they were preferably »technical« issues of funding like the conditions of releasing funds (from states or central government) that were subject to these recommendations. Besides, the above sketched recommendations for increasing the revenues is partly also a recommendation for improving the effectiveness and efficiency – but, as already mentioned, it is questionable whether or not these recommendations did have any repercussions on VET policy.

7. Identification of skill needs

Conceptual Clarification

With regard to the identification and anticipation of skill needs different types of 'anticipation methods' can be distinguished. Following Lassnigg (2006), anticipation of skill needs can be conceptualised in four ways:

a) conceptualisation, using the framework of 'transitional labour markets', which includes a specific focus on the development of labour market dynamics;
b) conceptualisation, using the 'foresight paradigm', which uses the methodology of forecasting as only one asset among others, and includes it in systematic practices of communicating forecasts among the involved actors in order to bring their informal knowledge and action potential into the process;
c) conceptualisation, from a specific institutional view on the relationship between education and employment;
d) conceptualisation of an anticipation system as a social system of knowledge generation and management. Early identification is 'a form of strategic analysis in which participatory procedures facilitate decision-making and concerted action in regional and local planning and for the discussion of skills needs.

Using this conceptualisation, Lassnigg distinguishes four groups of 'foresight' or anticipation methods that are grouped according to two dimensions: the dimension 'formal methods' vs. 'informal practices' and the dimension 'professional-political decision oriented' vs. 'technocratic knowledge oriented'.

Applying these dimensions the following four groups of methods can be distinguished:

a) functional analysis, detailed or strategic surveys, qualitative generalised approaches (e.g. action research), conference methodology (e.g. scenarios) (formal + professional-political decision oriented);
b) econometric models, extrapolation, survey methods (enterprises) (formal + technocratic knowledge oriented);
c) qualitative methods, such as experts, literature, Delphi (informal + technocratic knowledge oriented);
d) qualitative research for early identification such as tailor-made research, practitioners task forces (informal + professional-political decision oriented).

Another way of clustering that has been promoted is based on the distinction between an observant and a participatory design of the forecast mechanism on the one hand and an interventionist and a more analytical orientation on the other hand (Grollmann 2004). The distinction between qualitative and quantitative might be misleading in some cases, because what is referred to as »qualitative« methodologies might also be employing quantitative ways of gathering and evaluating data. Typical examples are large-scale Delphi designs such as the German Delphi Study on the »Knowledge Society« (Stock 1998). Similar qualitative methodologies under the use of quantitative data have been applied in the course of the CEDEFOP-ETF scenario study (Strietska-Ilina 2007, Sellin 2000).

Some early skill identification concepts building upon sectoral studies have been applied in European transitional economies like Estonia (cf. Järve & Annus 2007). These approaches

are highly flexible, allow for adjustments to the specific situation of the given country and are organised as open discursive processes involving stake-holders

Apart from the inventory of explicit prognostic and prospective research it has been stressed in recent discussions that the prospectivity of research methods is a general quality criterion of VET research (Grollmann 2004). An example would be specific ways of task analysis that are rooted in a Taylorist conception of work. Given that the early identification procedures used to date often focus on trends on higher levels of social analysis, they are less concerned with the design of VET. A research based early identification tool is in use by means of which it is possible to identify changes at shop-floor level. What was learnt from use of the instrument may be used to design future-oriented VET (Windelband 2004).

Comparative Findings

Where the identification and anticipation of skill needs is concerned, this does not seem to be a much-addressed theme in each of the countries. Overall, involvement of social partners in this area can be extended. The Russian government has attempted to involve the social partners, in particular in long-term forecasts, but until now that has not been very successful. The same holds true for India and for China.

Overall there seems to be a lack of systematic 'foresight' approaches at both the quantitative and the qualitative level, although in China some quantitative information is available through 'enterprise data' (e.g. job vacancies) of the labour market authorities. In China also, extensive experience has been gathered with using the DACUM[11] methodology for qualitative analysis, but by no doubts have risen with regard to the overall quality of this approach and presently alternative approaches are developed.

China

So far the stakeholders and social partners played only a subordinate role in planning of vocational education and training in China – not on national nor on sector or company level. VET planning is primarily the task of central and provincial governments, VET institutions and companies. Forecasting labour market demand is conducted through the employment offices in quantitative terms. This analysis of retrospective data builds upon an efficient information basis available for all provinces through the employment offices. The data bases for urban areas are pretty good (and complete) while the data from rural areas are incomplete. Though the systems and data are available, the efforts for analyses and forecast are only at the beginning, mainly because of a lack of methods and applicable procedures. The responsibility for developing vocational standards – even for emerging vocations – lies at the MoLSS,

[11] DACUM (Developing A Curriculum) is a method of occupational (or task) analysis. With moderation of a facilitator practitioners of an occupational field get together in a workshop to develop cornerstones of a new curriculum. A major shortcoming is the Taylorist view of work and task orientation embedded in the DACUM concept. Originally developed in the U.S., DACUM was successfully and widely used in Canada and during the last decades it was exported to many countries that were in need of developing curricula. To use DACUM as a tool for anticipating skill needs is a new field of application.

which in the past was not able to sufficiently support the VET institutions. The absence of occupational profiles forced the vocational education and training institutions to conduct qualification research themselves in order to develop the necessary curriculum on their own. A major shortcoming must be seen in the unchallenged use of the DACUM concept during the last years. This practice prevented developing alternative approaches using other methods, which are utilising action- and shaping-oriented occupational role models (as was done in a National Development and Reform Project for the Shortage of Skilled Personnel of the MoE). Up to now Chinese planning efforts for vocational education and training have no criteria for the development of occupations and qualification at their disposal. This is somehow intertwined with the decreasing significance of vocations as a structuring principle for a mainly school-based vocational education and training like in China.

The recently launched China Development and Reform Project (CDRP) aims at improving the education quality in order to deal with the shortage of skilled personnel in manufacturing and modern services. This project involves vocational institutes and various ministries (e.g. MoE, MoSLL) and commissions. It builds upon an investigation on the demand of skilled personnel of manufacturing and modern service industries, which was launched in 2003 by the MoE and other institutions. The CDRP has identified some piloting vocational institutions and enterprises and a new curriculum for selected occupational profiles was issued. The cornerstones of the new curriculum are:

a) emphasis on vocational competencies and accumulation of working experience;
b) considering vocational education and training based on enterprises' requirements as characteristics of the curriculum;
c) optimising teaching procedures according to vocational learning and increasing the action orientation.

India

There are various bodies that undertake planning and foresight as regards to human resources development and employment at different regional and sectoral levels. The most relevant institution for India's foresight activities is The Planning Commission that operates is under the overall guidance of the National Development Council (NDC) and it consults ministries and state governments. The Planning Commission generally conducts surveys on human resources development and qualification assessment, and also delegates assignments for studies to subordinate divisions or other organisations. It conducts studies and, if necessary, it constitutes task forces and working groups on important sectors of challenging (arising) developments in human resources, labour force, employment, skill formation etc. The Institute of Applied Manpower Research (IAMR) is one such organisation that carries out forecasting studies on behalf of the Planning Commission on demand and supply of manpower and issues in relation to Human Resources supply, development and utilization. The IAMR conducts both, short- and long-term assessments in various sectors. It also carries out rapid surveys, which use secondary data and the discussion with identified focus groups to reach an immediate need assessment. For long-term projections of 5-10 years in-depth surveys are used. It is remarkable that a number of ministries and other institutions outsource their HR and skill needs assessment to the IAMR.

The IAMR also operates the National Technical Manpower Information System (NTMIS), which is responsible for the evaluation and forecast/anticipation of the state's technical skills shortages in demand and supply of technical Human Resources. In addition, the IAMR is in charge of rapid market surveys on district levels.

More specifically in the field of VET supply (or »vocationalisation« as it is labelled), the District Vocational Education Committee (DVEC) were assigned to conduct assessment and foresight studies at local, regional and district level, which tried to identify vocational courses suited to local needs. An expert team of the State Institute of Vocational Education (SCERT) organised these district vocational surveys at state level. These district vocational surveys were expected to use data available from other surveys and organisations (e.g. those mentioned in the above paragraphs) and at least once in five years the data should be updated. Obviously, such district level surveys could be good planning bases for developing and supplying vocational courses, but in reality often these surveys have not been conducted or the vocational courses have started before the results of the surveys had could come out.

Korea

There are only very few mechanisms developed in Korea that can be used to identify and predict the demand of manpower on the labour market. The foresight of demands for certain skills and qualifications is even weaker. There are research institutes (government funded and private economic research institutes) conducting studies on the prospects of future manpower demands. They predict the prospective economic growth rate and unemployment rate on an annual basis, and apply this to predict the demand for manpower on a biannual basis.

The prospects for skill and qualification demand are not determined so briskly. Rather, they are determined by contacting officials in charge of personnel to make a sample survey of the current status and shortage of skilled manpower, and of the future demand plans every year. The following three are representative surveys: (1) survey of corporate manpower shortage rate; (2) survey of the current status and demand (Ministry of Commerce, Industry and Energy); and (3) survey of the manpower demand and supply realities of IT (Ministry of Information and Communication). The first two surveys follow a quantitative approach which is used mainly to examine the scope and shortage rate of vacant positions. The third survey on the prospect for IT manpower demand and supply adopts a qualitative approach. Its applied procedure combines the qualitative and quantitative approaches toward the demand and supply of IT manpower by applying the following steps:

(1) Based on the definition of IT manpower classification by the Korea National Statistical Office, (2) sample enterprises are examined in terms of current personnel and the scope of excess or shortage, (3) prospects are primarily made for manpower demand, using the findings, and (4) fine-tuning is done through expert screening and discussion. This survey was used for 17 vocational groups of the IT sector.

Russia

In Russia a discussion process is going on which links skill foresight, standardisation and new concepts of financing. Skill forecasting (anticipating labour market needs) is preferably done

on local and regional levels. That makes it a highly dispersed phenomenon lacking a general institutional framework across Russia. The general idea behind these activities is the insight that the output of certificates from the education system must match with the needs of economy – or the demand of the labour market. This paradigm is still rooted in the times of the planned economy. In contrast there is the conviction – at least among the neo-liberal thinkers in Russia – that an economic mechanism of stimulation will guarantee equilibrium between VET graduates and the demand of economy. The financing of vocational education schools thus is granted according to the number of graduates receiving an adequate employment after finishing their education (cf. the corresponding paragraphs in section Financing).

An additional difficulty of the Russian attempts to foresight future skill demands lies in the fact that most of the labour market forecasts build upon quantitative methods and therefore neglect the qualitative dimension, which is particularly important to consider the relation between rapid technological development and emerging skill needs.

The above mentioned mixing of the discussions on skill foresight and standardization are aggravating the situation in so far as there is almost no debate about the risks arising of a direct influence of employers (companies) on the contents, curriculum and thus the standards of VET. On the one hand such a co-operation might be extremely conflicting and paralysing the processes, on the other hand it is not at all sure, that the employers are really able to collaborate in designing future skill standards (or curriculum).

Besides the employers there are a number of other stakeholders actively involved not only in skill foresight, but also in standardisation and financing issues. Most importantly, there need to be mentioned: Besides the Ministry of Education and Science, the Ministry of Health and Social Protection, the Governments of the 81 regions, the DUMA Committee for Education and Science, and research institutes (e.g. Academy of Vocational Education and University for Pedagogy of Vocational Education) are involved.

8. VET Policy

Conceptual Clarification

Analyses of VET policy shall provide some indications of the general orientation, the main objectives of policy in vocational education and training, its main actors, levels of governance and modes of intervention. Furthermore these analyses include references to related (and interacting) policy fields such as employment or welfare policies. Evidently the discussion of VET policy builds upon the analyses of the structural contexts, and the institutional and administrative frameworks of VET. These aspects have been discussed in preceding sections therefore this chapter addresses the VET policies with its key issues and priority areas and attempts to identify the factors that are influencing VET policies in the monitored countries.

Comparative Findings

All countries observed have identified VET policy as a crucial element for economic development and increasing innovativeness. In the cases of China, India and Russia this leads to various VET policy measures in the 1990s: In China the enactment of the Vocational Education Law in 1996 was a major milestone, in India it was the modification of the National Policy on Education 1986 (NPE 1986 which coined the term »vocationalisation«) in the early 1990s, in Russia the Law of Education was enacted in 1992 and has repeatedly been modified since then. Because of its earlier entry into the global economy, Korea's first attempts to reform VET policy took place in the 1970s and 1980s.

The VET reforms and policy measures mostly were triggered by a low qualification level of the workers mainly in manufacturing and an increased need for more and higher qualified workers. In the case of China the economic development was so rapid during the 1990s that the demand for workers could only be fulfilled by a steady stream of low-skilled migrant workers from poor and disadvantaged rural areas. Since the early 2000s the Chinese government is aware of the negative impacts which arise of the poor qualification level of the workforce in manufacturing. In order to improve China's competitiveness as well as its level of innovativeness, and to lower its energy consumption and the number of work accidents it is seen as inevitable to improve VET by suitable measures. Such measures are the implementation of centres for practical VET all over China, i. e. in urban and rural areas, and the plan to channel around 50% of the students on secondary level into vocational schools until 2010. Further priority VET policy actions are a stronger alignment to emerging sector's needs, a stronger emphasis on practical abilities, the opening of the VET sector for public investments, and an improved cooperation between VET schools and companies.

India's most recent VET policy measures focus, similarly to China, on the overcoming of the rural–urban divide. VET policy is seen as one crucial component besides social and economic policy that can contribute to balancing urban and rural imbalances as well as to the »uplift« of 260 million people below the poverty line. A priority measure of India's VET policy is the implementation of a »Mission on Vocational Education and Skill Development«, through which the Indian government will open 1,600 new industrial training institutes and polytechnics, 10,000 new vocational schools and 50,000 new Skill Development Centres. Further policy measures are the establishment of cooperation between VET schools and

companies, which shall make them more demand and need-oriented. The guiding idea behind most of the VET policy measures is to shift VET from its manufacturing orientation towards the growing service sector's needs – thus to increase India's mid-termed global competitiveness.

The Korean efforts in VET reform are targeting at increasing the attractiveness of VET and thus to support the overcoming of shortages of skilled workers and technicians, which is seen as crucial for Korea's sustainable economic and technological development. The »Vocational Education System Reform Plans« launched in 2005 aim at strengthening vocational education and training through establishing specialised schools and VET centres. Through the »contract program« between industry and VET schools the practice orientation of VET students (or VET graduates) shall be strengthened. Further measures such as implementing incentives for lifelong learning, turning SMEs into learning organisations or initialising training consortiums for SME are targeting at scooping out the hitherto dormant potentials of workforce in order to overcome skill shortages.

The current challenges of Russia's economy are similarly to the other monitored countries characterised by a need for a highly qualified workforce in manufacturing and services. Increasing the attractiveness of VET is a crucial goal of Russian VET policy. This means to overcome the disproportions between lower, medium and higher vocational qualification – this means primarily to improve the situation of the NPO. The stimulation of cooperative vocational learning processes, enhancing skill forecast measures, a de-centralisation of non-university VET to the regions and granting incentives for private investment in VET are measures prioritised by recent Russian VET policy. Due to an insufficient inclusion of stakeholders, coordinating problems between the different policy and administrative levels and due to a general weakness of non-governmental stakeholders the Russian VET policy tends to cyclically »swing up and down«, i.e. priority areas might change and due to the coordination problems there is often a discrepancy between debate and practices.

China

Since the 1980s China's efforts in VET policy and adjacent policy areas are targeting at the improvement of vocational education and training at various levels: at the level of contents the adaptation to the needs of a globally competitive production was an emerging issue and on the organisational and administrative level reforms to improve the access to VET were important goals. With the enactment of the VET Law in 1996 vocational education was regulated throughout the whole country. Since the end-1990s the Ministry of Education increasingly aligned the VET more strongly to practical requirements. Chinese government's major target is the improvement of the workforce's qualification level. Eventually, in the year 2002 the Chinese Council of State passed a resolution on VET for the planning period of 2001–2005, which had the following goals:

a) reforms in VET organisation and administration;
b) reform of VET contents and adaptation to the needs of economy and society;
c) accelerated extension of VET to the rural areas and the Western regions;
d) adherence to the transition and entry requirements to workplaces;
e) expansion of the VET providing organisations;
f) increase of investment in VET.

A new resolution by the Council of State in 2005 (right before the national VET conference) supports and reinforces most of the goals formulated in the resolution for the 2001–2005 planning period. It states the following strategic priorities:

a) VET schools shall be aligned to service delivery and target at an increase of employment;
b) implementation of mechanisms to continuously adapt the curricula and teaching methods to changing needs of existing or emerging economic sectors;
c) increasingly bringing the skills and practical abilities into the centre of the vocational education;
d) support of cooperation between VET schools and colleges and companies;
e) opening of the VET sector to the investments of public and non-governmental organisations.

As a means to achieve the goal of implementing more practical skill teaching into VET a special programme shall be launched which will support the establishment of 2000 centres for practical VET all over China. Until 2010 such centres will be promoted and will receive special support.

There are other priority areas of VET policy that are directly connected with China's economic peculiarities: In certain industries (such as electric and electronic devices in the Pearl River Delta) production is largely based on migrant workers coming from rural areas. These workers generally are not adequately qualified for the jobs they are working at, therefore Chinese government will support vocational education and training in rural areas by establishing programmes (short-term or long-term) and which allow easy access for the rural youth. The expectations linked to this policy are twofold: one is that the growing demand for skilled workers in the growth industries at the coast can be met and the other is the hope that better trained people have a perspective in the rural areas and will stay there.

Chinese Government maintains the idea of paying the same attention to vocational education as to general education. This is mainly because VET is seen as having a significant influence on China's economic development over the next years. In a speech given at the National Conference on VET in 2005, Prime Minister Wen Jiabao emphasized the importance of VET for economic development, but he also identified remarkable deficiencies in China. He stated the that the poor quality of VET has negative impacts on China's innovative capabilities, leads to inferior product quality, causes high energy consumption and contributes to the large number of work accidents. Therefore VET policy has a key function for future economic development and thus is interlinked with other policy areas such as innovation, agricultural development, employment and regional development.

One important VET policy measure is intended to channel around 50% of the students on secondary level into vocational schools until 2010. Supplied with 1 billion Euro the measure basically contributes to an improvement of VET attractiveness, e.g. by awarding grants to young people of poor families if they decide for a vocational path. This measure shall tackle the currently low qualification level in manufacturing and contribute to improving the innovativeness of Chinese economy.

The main actors responsible for and involved in implementing VET policy are Government and Governmental bodies at central, regional and local levels. Furthermore, public and

private VET institutions in co-operation with enterprises are becoming increasingly important stakeholders and supporters of VET policy.

India

A far-reaching education policy recommendation was given by the National Policy on Education (NPE) in 1968, which identified an increased need for technical and vocational education and therefore recommended a bifurcation of secondary stage school education into vocational and general education streams. This strategic policy decision was reinforced by the NPE 1986 and by the 1992 modification of the former, which coined the term vocationalisation. The establishment of vocational courses or institutes was understood as the responsibility of Government together with public and private sectors. The idea behind was that by 1995 25% of the higher secondary students should enrol to vocational courses. The Kothari Commission's (1964-66) that leaded to NPE in 1968 view was that it should be possible to divert at least 50% of students completing 10-year education to vocational streams. The results have not been fully commensurate with the expectations. But the policy of vocationalisation of secondary education is still a very important component of India's VET policy since no other policy has been announced since 1986/1992. The scheme of vocationalisation of secondary education touches various fields such as the curricula, teaching materials, vocational guidance, teacher training, evaluation and certification, and the administrative and management structures of schools and institutes (Department of Education 2000).

An essential concept formulated in the NPEs is work experience, which is understood as »purposive and meaningful manual work, organised as an integral part of the learning process and resulting in either goods or services useful to the communitye« (Department of Education 1998: 28). In technical education, practical training in industry should form an integral part of such education.

Besides these policies in place there are some policies being planned: First, the Prime Minister Dr. Manmohan Singh in his Address to the Nation from the Red Fort on Independence Day, 2007, announced a Vocational Education Mission. »We will soon launch a Mission on Vocational Education and Skill Development, through which we will open 1600 new industrial training institutes (ITIs) and polytechnics, 10,000 new vocational schools and 50,000 new Skill Development Centres« (http://education.nic.in/policyprouncements.htm (25.2.2008)). In addition it is planned to develop a National Curriculum Framework, to make work-centred pedagogy a central organizing theme, and to interweave more strongly work needs in curriculum.

While in the past the pace of industrialisation, urbanisation and technological developments and the demand for skilled labour influenced the pace and extend of VET policy and reform, during the last decades globalisation and the emergence of knowledge society challenged to re-thinking these policies and structures. New concerns like gender equity and social balances exercise demands on policies and programmes for specific social groups. In particular, present and near future social and economic policy must balance urban and rural challenges as well as the challenge to uplift of 260 million people below the poverty line. For rural »upliftment« five areas have been identified: agriculture and food processing, health care, quality power supply, surface transport and ICT. Clearly, these activity fields require the

combined interaction with VET policies. Therefore future VET policies on vocational courses require to be demand and need-based, and must have a built-in flexibility to allow students to switch courses with changes in demand patterns. The existing schemes should be strengthened by involving industry in designing and certification of courses and training. The present manufacturing orientation needs to be shifted towards the growing service sector's needs. An increased involvement of stakeholders such as the Confederation of Indian Industry and the Federation of Indian Chambers of Commerce can help to implement new VET programmes by increasing the commitment of their clients.

For the purpose of improving effectiveness and efficiency a better staff development and motivation is required. Furthermore, the national vocational policy is intended to introduce modular training and multi-skilling, and the introduction of competence-based certification of workers without formal training are expected to help coping with the challenges of Indian economy and society in the future.

Korea

The strongest driving force for initiating VET reform in Korea is related to the limited attractiveness of VET for young people and their parents. Additionally, shortages of skilled workers on the technician level and the provision of equal opportunities (improving access of unemployed, aged, employees of SME etc.) are foundations of VET reform policy. The most recent VET reform projects have been launched by Ministry of Education and Ministry of Labour:

1. »Vocational Education System Reform Plans« have been proclaimed by Ministry of Education in 2005. The VES Reform Plans are characterized by policy initiatives to reform vocational education at each education level and to strengthen vocational education.
   - At the secondary VET level, the government is planning to transform 1/3 of current vocational high schools to »specialised« high schools. These specialised high schools provide programs targeted to specific professions compared to vocational high schools which provide more general vocational education specific to a broad-level industry (i.e. business). Also, the new strategy is reinforcing basic vocational competence education at vocational high schools, since shortage in basic vocational competencies such as comprehending ability, numeric skills and team-work ability of vocational high school graduates have been often criticized by employers. Since the new strategy for vocational education at the secondary level is aiming at restructuring of the traditional vocational high schools in Korea, provision of »consultation« for traditional vocational high schools that are attempting to restructure themselves becomes important. Therefore the government has allocated funds to financially support this consulting process.
   - At the higher education level, the new VET reform strategy is aiming at enlarging the capacity of junior colleges and universities to accept »adult« learners, because the enrolment of adults aged over 25 in regular courses at junior colleges and universities has been comparatively low in the past.
   - Strengthening of industry-school cooperation is another major objective of the new reform. »Contract Program« among an industry (or industries), a vocational high school, and a junior college are such an initiative. In this »contract

program«, an industrial sector becomes the centre of the network formed by companies, a vocational high school, and a junior college. By this contract, students in the respective vocational high school finish the contract program at the school and upon graduation they go to the contract program at the respective college while their status is that of an employee at the respective industry.

2. Similarly, the »First Plan for Lifelong Vocational Skills Development: 2007-2011« has been established by Ministry of Labour in 2007. This plan focuses on vocational competence development of adults for the 21st century. As mentioned before, participation of working and non-working adults in vocational education and training is relatively low (by international standards). With this plan the government intends to boost up the overall participation of adults in vocational training. Naturally, this plan is focused on improving participation in vocational training of employees in small and medium-sized companies (SMEs) and irregular and part-time worker who have limited access to vocational training. Improving participation of the old and women in vocational training is another focus of this plan, since low fertility is creating labour shortages and in combination with low mortality labour utilization problems.

The plan set up several initiatives to improve training opportunities for employed workers, in particular, workers in SMEs.

The plan encourages the transformation of SMEs into »learning organizations«. The government will fund efforts to set up a »learning organization« which should be a joint effort between the employer and the labour.

The plan encourages organization of »vocational training consortium for SMEs«, where large companies, employers associations, public vocational training institutions and universities together form these vocational training consortium to provide training for employees in SMEs.

The government is facilitating »recognition of companies with best HRD practices«, and that will influence the credit bureau to raise the rating in credit evaluation of firms for those best HRD companies. This initiative should help companies to invest more in vocational competence development of workers.

During the last decades of VET policy in Korea a limited number of stakeholders was involved (usually government, industries and regional policy bodies), but the future changes and reforms in VET policy call for transformation in the relationship between these key stakeholders and new stakeholders. The social partners have been weak stakeholders in the past, but their importance grows. The trade unions, for example, increasingly consider training as a core issue of their negotiations with the employers. For high priority issues such as all VET policy measures, the social partners are learning 'little by little' to cooperate for common goals. One indicator for this new attitude is the Korea Employers Federation's and the Korea Labour Union's plan to jointly establish the »Labour–Management Development Foundation« which will conduct VET related work. Furthermore, sectoral associations and organisations as well as public and private VET providers are increasingly involved in VET policy reforms either in deliberation before the enactment of VET laws or after enactment as actors in implementation.

Russia

Central items of actual VET policy have already been fixed in the Russian Law of Education from 1992. Since then VET policy and education policy in general is driven by government's attempts to put the concept of the law to life. A central question was whether the involvement of state needed to become reduced or whether the state's influence and responsibility (by different instruments of legal and financial governing) needed to be strengthened. Even though modifications have been made since 1992, this law is still fundamental for education policy. Today's VET policy is characterised by a paradigm, which meanwhile predominantly focuses on the country's economic growth within global competition as well as on internal economic efficiency of education investment.

Russia's main objectives of VET policy are:

a) to improve the human resources situation and the quality of education by means of more state and public private partnership financing (to foster employers' activity);
b) to overcome the disproportions between lower, medium and higher vocational qualification and to gain an equilibrium towards the needs of the slowly developing labour market;
c) to keep step with international education developments and standards;
d) social aspects, which are of special concern for lower vocational education, were claimed, but did not keep up with targets of economic and technological development (»information« or »science society«).

These objectives correspond to priorities of VET policy such as improving access and quality as well as adjusting the system of IVET and CVET for continuing (permanent; nepreryvnoe) VET, raising the attractiveness of the sector for private investment, forcing the involvement of social partners, i.e. predominantly social partners from the business side.

Policy debates on the near future action fields and urgent measures are discussing the following topics:

a) to enhance skill forecast and development of the labour market by legal and organizational provisions on the central (federal) level (for instance establishing councils of stakeholders, integrating different services of statistical agencies and their data basis etc.);
b) to develop the legal and administrative provisions of educational regulation for involving private investment (question of tax reduction for »non-commercial« education activities, types of cooperative, i.e. educational institutions within state-private partnership (governing bodies) or establishment of a treaty-system between business and schools. Inclusion of social partners incl. private economy in the process of creating third generation educational standards. Establishing mixed councils, advisory and evaluation boards of different stakeholders;
c) to stimulate cooperative vocational guiding, instruction and learning processes at places between economy and education establishments (complexes or centres for integrated learning and production, if possible embracing research; innovation; 'business incubators');
d) to continue the process of decentralizing non-university VET to the regions instead of the federal level;
e) to improve the situation of NPO as neglected sector and to develop SPO, the latter even in cooperation with higher education institutions; different scenarios are:

restructuring the network by closing; upgrading or integrating NPO into SPO; funding by per capita principle[12], changing and enhancing salary payment systems for teaching staff, stimulating innovative projects by the Priority Project Education (PNPO).

The stakeholders involved in VET policy comprise of the federal ministry, regional executive bodies, local authorities, the social partners. NGOs and independent experts are of minor importance. While the different layers of political administration suffer from long lasting problems of coordinating their policies, which often is contradictory, the social partners are weak stakeholders. The trade unions are weak organisations and the association of industries is forced to be loyal to the federal government. NGOs are under growing political control. There is a growing number of advisory boards embracing directors of research institutes, politicians and practitioners as well as the unions of SPO and NPO school heads – but by and large they have only inferior influence on Russian VET policy and reform.

[12] Per capita financing, already a complex problem for different types and levels of general education schools, seems to be still more complicated for IVET institutions. Until now, vocational schools preferred a selection of qualifications guaranteeing financial contributions by the learners, thus, if per capita financed by the state, they will choose qualifications with low costs and higher per capita rates (see: I. Smirnov, www.labourmerket.ru).

9. Conclusions

Monitoring the VET systems of China, India, Russia and Korea means to look at major competitor countries of the European Union. All of these monitored countries have made big economic progress during the last decades and all of them are prepared to deal with the challenges of globalisation. Their success measured in terms of GDP growth is convincing and it can be expected that all countries of the sample will be performing well in future globalised production. Evidently, economic success is only partly rooted in policy. Other important contributing factors are labour markets and wage systems, natural resources and the like.

General lines of development

A quick view at the historical lines of development shows that all observed countries are late industrialisers: During the first decades of the 20th century Russia, and China carried out an industrialisation based on heavy industries within the framework of socialist (planned) economies. Korea is one of the Asian Tigers that started its »take-off« in the 1960s/70s under the rule of a military regime (which was later taken over by a civil government). India's transition into the club of fast growing economies took place after the 1970s. From independence until the 1990s the model of industrialisation was guided by heavy industries and the policy tended to protectionism. Thus, India, China and Russia went through very important transitions towards liberal market economies around the 1980s to 1990s. During these transitional processes that have led to an accelerated integration into the global markets, the need for adaptation of their VET systems arose and guided national VET policies.

Clearly, there are various policy domains contributing to economic success, out of which the contribution of VET – even in its widest sense – maybe limited and at least difficult to assess. However, VET systems and current policies are in close interconnection with other factors of economic growth and success. If we can help to disentangle those closely interrelated spheres and make this interrelation more transparent, then the study has already reached one goal as regards to the notion of »policy learning«.

Comparative Conclusions

In the following, the most important findings of the comparative monitoring are presented and an attempt is made to draw conclusions to point to possible recommendations that might be formulated for European countries and the European Union in order to support their struggle for a good position in the global economy, innovation with more and better jobs and social cohesion during the coming decades.

First some general findings will be presented that can be derived from the commonalities of the monitored countries' VET systems. These findings will be scrutinized regarding their potential for informing the European Union's VET policies and the opportunities to learn. Those findings serve the global »trendscouting« function of this study.

The second section of these conclusions will summarise differentiated findings alongside the major thematic fields of this study:

a) image and attractiveness of VET,
b) financing of national VET systems,
c) the countries' efforts in skill forecasting.

Those umbrellas provide the possibility of making direct comparisons with the Europe. With a reference to the results and recommendations of the Maastricht study we will formulate conclusions of this study's comparative findings, relate them to the Maastricht study's key messages and see if there is a match. By addressing the issues of VET's image and attractiveness, and financing of VET the findings lay within the frame and scope of the Maastricht study. The topic of skill foresight goes beyond the Maastricht study's research framework. Therefore, the latter point has no reference to the Maastricht study. Where appropriate, conclusions will be drawn that rest on individual countries' practices or policies that could be of specific interest to European VET policies.

General commonalities

1. The elaboration of conclusions must begin with mentioning that the largely criticised deficiencies regarding the availability of adequate and sufficient data on various aspects of VET are still prevailing. This is particularly – and somehow surprisingly – still the case with data and indicators on VET expenditures, the participation rate in VET, school-to-work transition data etc. It is astonishing that the availability and quality of qualitative data on VET is in some fields better than the quantitative data. Certainly, the absence of pronounced scientific sub-disciplines and respective infrastructures dealing with VET research is related to this lack of data in the monitored countries. The difficulties we experienced to find VET experts in some of the countries supports the impression that VET research in these countries has not yet flourished to a research landscape addressing a huge variety of thematic areas of VET.
2. The most striking commonality between China, India, Korea and Russia is that their vocational education and training systems are dominantly school-based. In all countries vocational education and training is preferably provided at vocational schools, junior and senior vocational schools, and specialised (post-) secondary schools. The entry into the labour market is also feasible from general education tracks, but the graduates from the general education track suffer severely from deficiencies in skills and practical knowledge required for the occupations. The provision of practical skills through work-based learning is a weak point in all systems monitored. Apprenticeship programmes that in all monitored countries eke out a peripheral existence tackle this major deficiency. Of course co-operation programmes between vocational schools and local industry might support the solution of this »practice problem«. Yet, it did not succeed, mainly because companies are hesitant. This is due to the fact that companies prefer their in-house on-the-job training as the adequate measure to solve the companies' need for academically as well as practically skilled and competent people.

Image and attractiveness

3. Considering the Maastricht study's key messages regarding IVET, it identified 'quality' as the major issue in Europe's initial VET. This insight is based on a fairly high participation

rate in initial VET (average across all EU member countries). Therefore, the policy focus was directed on quality, attractiveness and flexibility of IVET, for example by fostering experience-based routes into working life. The four countries analysed in this report are challenged twofold. First, they are keen on finding measures or raising the quantity of IVET participants, and secondly, in order to achieve this they need to raise the quality and image and attractiveness of IVET. This has turned out to be a difficult task, because the four countries share strong resentments against practical work and (the acquisition of) practical knowledge. This is deeply rooted in culture, religion and societal values. This situation leads to a generally higher preference for general education paths in these countries. Considering this situation, the EU countries are in a more comfortable situation: higher participation rates and less resentment against vocational pathways of education. Evidently, most school-based VET systems in Europe suffer from a lack of practical work-place learning, but there are promising pilots implemented (like school-company co-operation, internships). With that at least tentatively first steps are made and Europe compares well to the group of monitored countries.

4. In all monitored countries vocational education and training paths suffer from a negative image. In Korea and China, the countries with a strong Confucian heritage, the contempt of manual labour and practical skills is most pronounced. The attempts followed in China to extend the vocational track into the tertiary education are probably the most promising measure to improve the image and attractiveness of VET. All the initiatives in the monitored countries to improve a »lateral mobility« allowing for switching between vocational and general educational pathways did not significantly boost the image of VET, but rather contributed to the escape from vocational education and training pathways. This influx of talents to the general education track can possibly be reduced if India, Korea and Russia would follow China's example to implement an extension of the VET pathways into tertiary level and put the certificates (and exams) in the same category as those of general tertiary education. Ironically, despite of its Confucian heritage China has probably the strongest vocational education and training track of the sample's countries – mainly because the capacities to offer career paths in general education are limited and many young people therefore choose the vocational education and training pathways.

5. The negative image and little attractiveness among the population and especially among youth is corresponding with reservations of companies against the vocational schools. The reputation of the VET institutions is often bad, because they do not match the needs of companies for skilled workers. The Maastricht study labelled the obvious solution as »developing new linkages«, i.e. to establish, among others, co-operations between companies and VET institutes especially on local and regional levels. The possibly developing dialogues on the contents, the quality, the curriculum and the relationship of theoretical knowledge and practice can bring companies and schools closer together and contribute to increasing the organisational and curricular flexibility of VET. Up to now, the awareness of the necessity to co-operate has increased, but putting it into practice is only slowly gaining momentum.

6. The key messages of the Maastricht study assume the recognition of non-formal and informal learning to increase the attractiveness of VET programmes by opening up career

paths or qualification levels otherwise not achievable for certain target groups. Additionally, formalised recognition would improve the chances for allocation on the labour market. Surprisingly, none of the observed countries in our study is undergoing major efforts to implement some procedures for recognition of the outcomes of learning forms distinct from learning in formal settings. Obviously this deficiency is linked with the prevailing low ranking of non-academic knowledge and skills. This attitude of neglecting non-academic forms and contents of knowledge and skills and their acquisition is underlined by the hint on entry exams for externs and the openness for graduating exams of vocational courses for which also externs are approved. Clearly, the level of awareness among the EU member countries is higher as well as the level of EU policy regarding this point.

Financing

7. The expectation to learn about innovative forms of financing VET systems in the four countries, China, Korea, India and Russia, was not fulfilled. Even though the public funding of IVET has increased in all of the four countries during the last decade, China's, India's and Russia's funding situations are labelled as 'under-financed', 'underinvested' or 'problematic'. The recent developments in financing are following the well-known paths of privatising costs by raising fees or the introduction of performance-based financing schemes that regulate the influx of governmental money to public and private VET providers. The amount of revenues gained through tuition fees and income-generating activities of the VET institutions is on the increase. The hope to find innovative approaches to funding of VET among the competitor countries brought about only the well-known measures such as voucher and levy systems as well as per capita financing of VET schools and incentive grants. All these measures are controversial and in most cases only tentatively implemented. The case of India teaches us that evaluation is an important means to assess the overall performance and adequate allocation of resources, but since there is a history of failures to implement the recommendations into practice documented, this example has to be carefully analysed in future research to let it inform EU VET policy.

Identification and anticipation of future skill needs

8. The identification and anticipation of future skill needs is the »stepchild« in all of the four countries. Skill forecasting in a narrower meaning is rarely conducted, but rather more general human resources and manpower forecasting, which is carried out by planning commissions based on census data or data from employment agencies. Such foresight activities are rarely linked with the assessment of real needs emerging from developments in production and practice. Additionally, there are only few exceptional cases where foresight activities are interlinked with curriculum development and devising occupational profiles. Usually, foresight activities are focussing on other social layers and levels of abstraction, than the information that would be needed in order to make informed decisions about the design of VET programmes or training regulations. An interesting measure is reported from India, where on the district level assessment and foresight studies are conducted in order to identify vocational courses suited to the local needs.

However, the practice of these district vocational surveys shows that often the results of these surveys are not fed into the planning procedures for vocational courses. China takes the approach to delegate the adaptation of vocational curricula in line with regional needs to local administrations and the corresponding vocational institutions. In cooperation with local industries they are expected to provide VET according to regional needs. However, whether or not this works cannot be identified from outside due to missing monitoring data.

General Conclusions for European VET policies

1. For the four countries monitored in this report it seems as if the close look at them can mainly serve a mirroring function. The look at their VET landscapes and the three thematic areas helps to unveil and profile certain distinct features of European VET. In future studies it might be worthwhile to take a more focused look at the identification of exemplary practices on the institutional level or below.
2. Image and attractiveness of VET in Europe compares well to the monitored countries that are all putting in enormous efforts into trying to raise the image of VET. This can be seen as an asset to VET policies in Europe. However, it could also be argued that Europe is set on a specific future track with regard to the future development of their training systems, whereas the four monitored countries can still make a »choice« about the general strategic direction.
3. The »policy packages« that are available in general are roughly an integration of education and HRD through establishing VET as a pathway within the initial and higher education system or to bet on a strategy that puts emphasis on an academic orientation of the education system and leaves the whole issue of competence development and HRD to the individual and companies after graduation. It seems to varying degrees that the four countries monitored in this report are still undecided with regard to this general strategic question. China is the country observed that makes the most visible attempts to establish VET as distinct pathway.
4. The case of China also shows that the second strategy is often connected with need for measures of training that are helping college graduates to acquire the skills they need in the labour market after leaving the higher education system. This can involve high personal and societal costs that possibly could be avoided.
5. All in all one question remains: Is a strong VET system a pre-requisite to economic success? The monitored countries obviously show that it is not the case. However, that rests with the measures of economic success and distinction needs to be made between fast economic growth and sustainable competitiveness based on sophisticated products and services. In the country reports it could be seen that the first policy package of integrating VET and HRD into the education systems is closely associated with an agenda of sustainable growth and competitiveness. The formulation of a more coherent strategy might be possible when looking at the results of the other LOT of this study that covers the countries USA, Canada, Australia and Japan.

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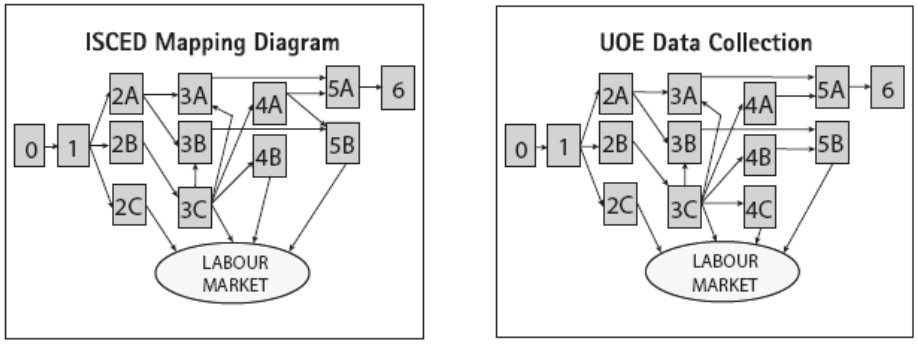
Annex:

Information about ISCED

Finally, the »type of subsequent destination« criterion is applied at levels 2 through 5, but not in the same way throughout (see Figure 1):

- At ISCED levels 2 and 3, there are three types: A, B and C.
- At level 4, there are only two ISCED types: 4A and 4B. However, the UOE data collection subdivides ISCED 4A (which provides entry to ISCED 5) in two types, calling them »4A« (which provides entry to ISCED 5A) and »4B« (which provides entry to ISCED 5B), while labelling ISCED 4B (designed for direct labour market entry) as »4C«.
- At ISCED level 5, there are also only two types, 5A (which provides entry to ISCED 6) and 5B, which are not modified by UOE data collection.



(UNESCO Institute for Statistics (UIS) 2006: 11)

Abb. 1 Figure 1: ISCED mapping diagram showing levels and destinations, and UOE's modified version

ISCED levels are, in principle, based on the »complexity of the content« of programmes.32 However, in practice, given the lack of international standards on levels of educational complexity, they rely on a number of programme characteristics which are used as proxies. These relate to: 1) typical starting ages; 2) duration of programmes; 3) entrance requirements for programmes; 4) intended destination of graduates; and 5) types of qualifications awarded. The ISCED levels ascend from Level 0 to Level 6, where Level 0 refers broadly to pre-primary education, Level 1 to primary education and Level 6 to advanced research qualifications. The remaining levels, which correspond to this report, ascend broadly from lower secondary (2), to upper secondary (3) to post-secondary non-tertiary (4) to first stage tertiary (5). These levels are further subdivided on the basis of the destination for which the programmes have been designed to prepare the students. The ISCED levels relevant here are defined as follows.

ISCED Level 2 programmes (usually designated nationally as lower secondary) are those which start when education begins to be organised into a more subject-oriented pattern. Level 2A programmes are designed to prepare students for entry to Level 3A or 3B programmes, which may in turn lead to tertiary education. Level 2B programmes are designed to provide access to Level 3C programmes, which will lead to direct entry to the labour market. Level 2C programmes are designed primarily for direct access to the labour market.

ISCED Level 3 programmes correspond to the upper secondary phase of education, normally require completion of ISCED Level 2 for admission (or its equivalent for adults) and typically run between two to five years. Level 3A programmes are designed to provide direct access to Level 5A programmes. Level 3B programmes are designed to provide direct access to Level 5B programmes. Level 3C programmes are designed to lead directly to the labour market, to Level 4 programmes or to other Level 3 programmes.

ISCED Level 4 programmes are significantly more advanced than the Level 3 programmes and are typically attended by students who are older than those at Level 3. Students will normally have completed a programme at 3A or 3B to gain admission and the course will last between six months and two years. Level 4A programmes are designed to provide direct access to Level 5A programmes. Level 4B programmes are designed to provide direct access to Level 5B programmes. Level 4C programmes are designed to lead to direct entry to the labour market or to other Level 4 programmes.

ISCED Level 5 programmes represent the first stage of tertiary education, are significantly more advanced than Level 4 programmes and normally require successful completion of programmes at Level 3A, 3B, 4A or 4B for entry. Level 5A programmes are largely theoretically-based, involve at least three years of learning at tertiary level and are intended to provide sufficient qualifications for entry into advanced research programmes or professions with high-skill requirements. Those involving three to five years of study are classified as Medium; those with five to six years as Long. Level 5B programmes are more practically-oriented and occupationally-specific than 5A programmes, last at least two years and do not prepare students for direct access to advanced research programmes. Courses lasting for less than three years are categorised as Short. Those lasting from three to five years are categorised as Long.

Additionally, programmes can have three types of programme orientation at Levels 2, 3 and 4:

Type 1 (general) covers education which is not designed specifically to prepare participants for a specific class of occupations or for entry into further vocational or technical education programmes. Less than 25% of the programme content is vocational.

Type 2 (pre-vocational) covers education that is mainly designed to introduce participants to the world of work and to prepare them for entry into further vocational or technical education programmes. Successful completion does not lead to a labour market-relevant vocational qualification. For a programme to be considered as pre-vocational, it should comprise at least 25% vocational or technical content.

Type 3 (vocational or technical) covers education that prepares participants for direct entry into specific occupations and successful completion leads to a labour market-relevant vocational qualification.

The ISCED classifications cannot provide a complete framework for classifying TVET learning across the globe. They do not seek to cover many aspects of non-formal and informal learning, which may have vocational content, and such is the diversity of forms of provision in different countries, that the criteria for level and type cannot be applied in a mechanical fashion in all cases. Mapping programmes into the ISCED levels is essentially an

exercise of judgement that may involve a variety of different considerations, which is often difficult.

(UNESCO Institute for Statistics (UIS) 2006: 17-19)

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